

Now
9 1/8 x 6 1/2
inside
9 5/8 x 6 3/8

~~Ca 50~~

THE ORCHID REVIEW.

B 1.75



VANDA SANDERIANA.—Lindley Medal plant (see page 361).

Q4
.062
1915
V.23

THE ORCHID REVIEW

An Illustrated Monthly Journal
DEVOTED TO ORCHIDOLOGY

EDITED BY R. ALLEN ROLFE, A.L.S.

VOLUME XXIII.

1915

KEW:
FRANK LESLIE & CO., 12, LAWN CRESCENT.

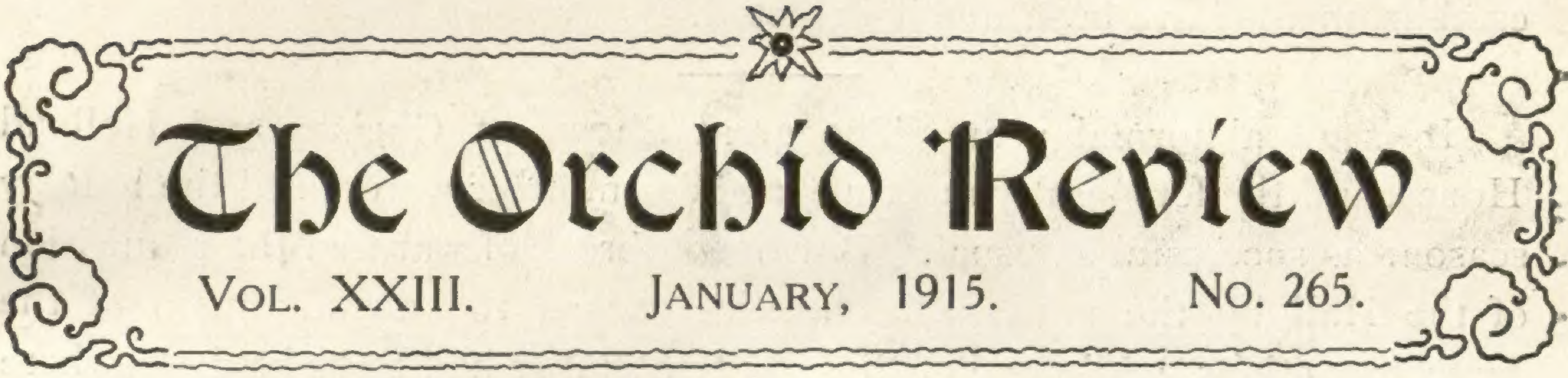
LONDON AGENTS:
MARSHALL BROTHERS, LTD., 47, PATERNOSTER ROW, E.C.

[All rights reserved].

TO
FREDERICK SANDER, Esq., V.M.H.,
HEAD OF THE FIRM OF MESSRS. SANDER & SONS, ST. ALBANS,
TO WHOSE ENERGY DURING THE LAST FORTY YEARS
IN IMPORTING THEM FROM ABROAD
AND RAISING THEM AT HOME
OUR GARDENS ARE INDEBTED FOR SOME OF
THEIR MOST BEAUTIFUL ORCHIDS,
THIS TWENTY-THIRD VOLUME OF THE "ORCHID REVIEW"
IS CORDIALLY DEDICATED.

Kew,
December, 1915.



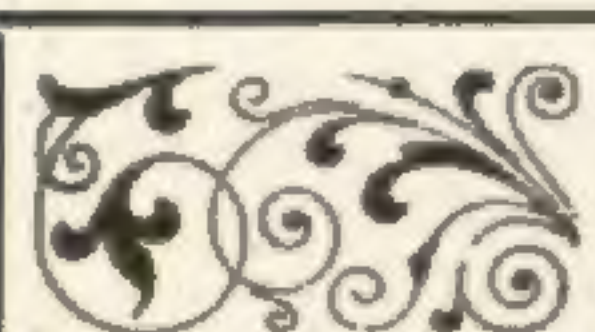


The Orchid Review

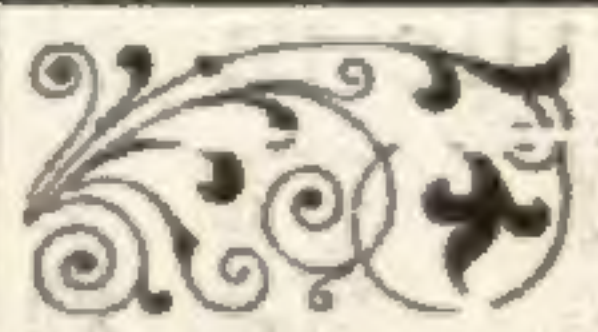
VOL. XXIII.

JANUARY, 1915.

No. 265.



OUR NOTE BOOK.



THE waning of the old year brings us to the period of our annual survey, but what shall we say of 1914? It opened under conditions of great promise. The Royal Horticultural Society had just organised a scheme of registration of Hybrid Orchids, the embargo on the Reichenbachian Herbarium, which has retarded the progress of Orchidology for a quarter of a century, was about to be removed, and the cultivation of Orchids was never so popular or so widely extended. The year had run more than half its course on lines of peaceful progress, but then, with the suddenness of a cyclone, the tornado of war swept across the track, and we believe that Orchidists the world over will join us in deploring the catastrophe. The result cannot be foreseen, but already we have witnessed, regardless of treaty obligations, the devastation of a small state which has long been in the forefront of European horticulture, and the scattering of its people as refugees in neighbouring lands, with numberless other horrors. This is not the place to assess the cause of this crime against humanity, but we may hope and pray that one of the effects of this titanic struggle will be to establish upon an impregnable basis the principle that Right is the only true Might, and that no country may hope to attain by employing its military powers what it cannot reach by the methods of peaceful development. But this is looking too far ahead.

Other effects of the war have been the suspension of Continental horticultural journals. The *Revue Horticole* early announced its suspension, owing to the fact that the whole of its staff had gone to the front, and *Le Jardin* and the *Revue de l'Horticulture Belge* have, we fear, shared a similar fate. The *Gardeners' Chronicle* has for some weeks devoted a page, in French, to the interests of the exiled French and Belgian horticulturists in this country, and steps are being taken to provide temporary employment for these distressed people. Our own countrymen have answered the call

of duty in large numbers, and the staffs of many Horticultural and Orchid establishments have been much depleted.

It is an abnormal year. The great Shows at Chelsea and Holland House, and the fortnightly meetings at Westminster were, until the holiday season, as successful as usual. But the outbreak of war and the requisition of the Hall by the military authorities caused the abandonment of the August meetings, while one of those in September had to be held elsewhere under unsuitable conditions. The difficulty has since been removed, but the meetings have never quite recovered their former character.

CERTIFICATED ORCHIDS.

The number of First-class Certificates awarded by the Orchid Committee of the R.H.S. was 35, only one fewer than last year, and the subjects comprised eight *Odontoglossums*, seven *Miltonias*, six *Cattleyas*, three *Læliocattleyas*, two each of *Cypripedium*, *Odontioda*, and *Odontonia*, with a single representative of *Cymbidium*, *Dendrobium*, *Lælia*, *Sophrocattleya*, and *Sophrolælia*. No fewer than 29 of these were hybrids, and it is believed that the three varieties of *Miltonia vexillaria* which gained this award were seedlings of garden origin. *Miltonia* jumped suddenly to the second place on the list, and it is curious to note that *Brassocattleya* is absent, while last year it had five representatives. The Awards of Merit fell from 105 to 70, which is partly explained by the higher standard of excellence required to gain this award. Here hybrids were still more to the front, for only ten at the outside can claim to have been imported plants. An analysis shows that the list contains twelve *Læliocattleyas*, eleven *Cattleyas*, *Odontioda* and *Odontoglossum* nine each, five *Cypripediums*, four *Cymbidiums*, *Brassocattleya*, *Miltonia* and *Odontonia* three each, *Dendrobium* and *Oncidioda* two, while *Bulbophyllum*, *Oncidium*, *Phalænopsis*, *Renanthera*, *Sophrocattleya*, *Sophrocatlælia*, and *Vuylstekeara* had each a single representative. It is further interesting to note that out of about 98 hybrids mentioned above no fewer than 41 are generic crosses. The Cultural Commendation necessarily implies a high standard of culture, and of these seventeen were awarded, about half as many as last year, though the decline does not represent a falling away in quality to this extent.

HYBRIDS.

Hybrids naturally tend to run in somewhat definite grooves, those being followed up which are of proved excellence; nevertheless several very interesting developments may be pointed out. One of the best is the handsome *Odontonia Charlesworthii*, raised by Messrs. Charlesworth, from *Odontoglossum Uroskinneri* crossed with the pollen of *Miltonia vexillaria*, which gained a First-class Certificate, and was figured at page 241 of our

August issue. *Odontonia Lucilia*, derived from *Odontoglossum cirrhosum* and *Miltonia spectabile* Moreliana, is another interesting hybrid of the same firm, which secured an Award of Merit and a Certificate of Appreciation. *Oncidioda Mauricei* is a very distinct and striking hybrid raised by M. Henri Graire, Amiens, France, from *Oncidium tigrinum* crossed with the pollen of *Cochlioda vulcanica*, and has almost entirely the habit of the former, but the sepals and petals of a peculiar red-purple with a primrose-yellow lip. It received an Award of Merit on May 5th. *Odontocidium southgatense* was raised by Messrs. Hassall & Co., from *Odontoglossum Edwardii* and *Oncidium macranthum*, and has not yet reached its full development. *Odontoglossum Sandhurstianum* was raised by Messrs. Armstrong & Brown, from *O. coronarium* and *O. Edwardii*, and is most like the former in shape, with a much modified colour. *Cymbidium Dryad*, raised by Sir George L. Holford from *C. insigne* and *C. Parishii* Sanderæ, is likely to develop into a good thing.

Calanthe Branchii, shown by C. J. Lucas, Esq., represents the third successful attempt to unite the evergreen and deciduous *Calanthes*, the parents in this case being *C. Textoni* and *C. Wm. Murray*, a Certificate of Appreciation being awarded. *Brassocattleya Rex*, derived from *Cattleya Rex* and *Brassavola Digbyana*, is a very distinct hybrid which was shown by W. Burkinshaw, Esq. *Sophrocattleya November*, shown by J. Gurney Fowler, Esq., is a handsome hybrid from *Cattleya Portia* and *Sophronitis grandiflora*, which received an Award of Merit. *Odontioda Zenobia*, shown by F. M. Ogilvie, Esq., was derived from *Odontioda Charlesworthii* and *Odontoglossum percultum*, and is one of the best of a series of secondary hybrid *Odontiodas* which have appeared during the year, receiving a First-class Certificate in March last. *O. Doris* and *O. Sybil*, from the collection of Mrs. Norman Cookson, have obtained Awards of Merit. *Odontonia Magali-Sander* var. *xanthotes* is a very interesting albino, raised in the collection of O. O. Wrigley, Esq., from *Miltonia Warscewiczii xanthina* and *Odontoglossum armainvillierense album*. A plant shown by Messrs. Charlesworth & Co. received an Award of Merit.

SPECIES.

Among species a noteworthy event was the flowering of *Oncidium Leopoldianum* in the collection of H. S. Goodson, Esq., in July last, when it received an Award of Merit from the R.H.S. The event has been anticipated for over twenty years, but the few plants originally introduced either refused to flower or proved incorrect, and the present one came out of a later importation by Mr. H. A. Tracy. Its history and a figure appeared at page 345 of our last volume. Another event was the flowering of the remarkable *Bulbophyllum Fletcherianum*, a New Guinea species

originally introduced by Messrs. Hugh Low & Co. some years ago. It received an Award of Merit from the R.H.S. in May last, when exhibited by the Rev. J. C. B. Fletcher. A good many novelties continue to appear among what may be termed botanical Orchids, and descriptions of two Decades, which have been described in the *Kew Bulletin*, were reviewed in our September issue. It is always interesting to recognise in cultivation species that have hitherto only been known from dried materials, and among these we may mention *Dendrobium Tofftii*, figured at page 9, and the pretty little *Oncidium Leiboldii*, figured at page 361 of our last issue. *Pleione pogonioides* also flowered for the first time in cultivation, and the appearance of several botanical species has been recorded in our pages.

OTHER INTERESTING EVENTS

that might be mentioned are the flowering, in the collection of Mrs. Norman Cookson, of the remarkable *Odontioda Latona* var. Pearl, in which every trace of the scarlet colour has vanished from the flower. This distinct thing was figured at page 105 of our last volume. Among questions that have been prominently discussed in these pages are the Nomenclature of Hybrids, with proposals for the London Botanical Congress (now postponed indefinitely owing to the war), Heredity and Evolution, and the Origin of Species by Crossing, all of which have come to the front during the year.

LOSSES DURING THE YEAR.

Orchidology experienced a great loss in the death of the Right Hon. Joseph Chamberlain, M.P., whose collection at Highbury has long enjoyed a world-wide reputation, and our obituary notices include the names of Richard le Doux, an old and very enthusiastic Orchidist, George Gordon, for many years Editor of the *Gardeners' Magazine*, Frank Cypher, and John Gould Veitch, while on December 17th passed away the veteran W. B. Latham, for many years Curator of the Birmingham Botanic Garden. The death of the veteran fungologist, Dr. M. C. Cooke, must also be mentioned in connection with the fungus diseases of Orchids.

THE COMING YEAR

opens in gloom, especially for establishments situated within the war area, but let us hope they will escape destruction, and that a period of enhanced prosperity awaits them when the present nightmare has passed away. We await the future with confidence. The path of duty is ever the path of safety, and Right must and will prevail. One of the problems of the future will be to secure a better understanding among the nations, and a fuller recognition of the right of peaceful development for each and all. It is the tragedy of the day that diplomacy has not been able to secure this without the present lapse into barbarism, and the lesson must be taken to heart by all lovers of true progress.

 HYBRIDS AND MR. JAMES BATEMAN.

THE ever-increasing popularity of hybrids would have shocked some of our old Orchidists could they have lived to see it. We well remember the remarks on the subject made by Mr. James Bateman at the Orchid Conference held at South Kensington in 1885. In probably a rash moment, he was induced to propose a vote of thanks to Mr. Veitch for what he described as an admirable paper, and he remarked:—

“I am sure that he, and Mr. Dominy also, will know and appreciate the effort it costs me to make this proposal, for I have been brought up with the strongest abhorrence of hybridisers. (Laughter.) I fell into evil hands early in life. My first Orchid-growing friend was Mr. Huntley. When I paid Mr. Huntley a visit at his snug rectory in Huntingdonshire, he pointed out to me his Cacti and his Orchids, and said, ‘I like those plants, in fact they are the only plants I grow, because those fiends (meaning the hybridisers) cannot touch them.’ (Laughter.) You must make a little allowance for a botanist, for hybridisers do give botanists a lot of trouble—(laughter)—but, however strong my prejudices were, I must confess that when I saw such plants as the *Cattleya* downstairs, if I was not convinced, I was, at all events, shut up. (Laughter.) I have the greatest pleasure in moving the vote of thanks to Mr. Veitch. (Applause).”

In his reply Mr. Veitch remarked: “Mr. Bateman is such a kind-hearted genial gentleman, that many a time I have asked myself why, when he came into my houses, he used to act in such an extraordinary way when he saw a hybrid. Now I have found it out; it was this friend of his who he has mentioned who set the bad example. (Laughter.) However, I am very glad to find Mr. Bateman has lived sufficiently long to get rid of his prejudices against the hybrids, and I hope I shall before long be able to name one after him. (Laughter).”—*Journ. R.H.S.*, n. s. vii. p. 49.

And we have Mr. Bateman's own comments on the Veitchian hybrids, for in a series of racy articles under the title “*Dies Orchidianæ*,” by “*Serapias*,” we find him describing a visit paid to the Chelsea establishment in 1864, when he remarked (*Gard. Chron.*, 1864, p. 341): “Passing on to the *Cattleya* house, I found all the popular favourites mustered in great force; among which, however, I must not be supposed to include some of the hybrid triumphs of Mr. Dominy's misplaced ingenuity, *e.g.*, *C. Dominii* and so forth. Hybridise everything else, if you will, but spare—oh, spare—the Orchids.” This, it is true, was in 1864, but thirty years later, although *Lælia Batemaniana* had been dedicated to him, he wrote to us: “I am not interested in hybrids.”



GRAMMATOPHYLLUM SPECIOSUM AND ITS ALLIES.



THE flowering of the giant *Grammatophyllum speciosum* is a rare event in Europe, and that of the Kew plant (see page 372 of our December issue) reminds us that there are several allied species whose history is very imperfectly known, while that of *G. speciosum* itself has been much confused. There are two quite distinct sections in the genus, one characterised by its long subcylindrical closely-leafy stems, as in the original *G. speciosum*, the other having short oblong much-swollen pseudobulbs, as in *G. scriptum*, Blume, and the better-known *G. Rumphianum*, Miq. (*Bot. Mag.*, t. 7507). The latter group may be called section *Gabertia*, as it includes Gaudichaud's genus of the same name, while the former may be distinguished as section *Eugrammatophyllum*, and to it the present notes are confined.

GRAMMATOPHYLLUM SPECIOSUM, the original species of the genus, was described by Blume in 1825 (*Bijdr.*, p. 378, t. 20), as a giant Orchid found on trees in the neighbourhood of Buitenzorg, Java. Afterwards a fine coloured plate was given (*Rumphia*, iv. p. 47, t. 191), and the locality Cochin China was added, on the authority of a specimen collected by Finlayson at Pulo Dinding, which is a small island on the west coast of the Malay Peninsula, off Perak. The fact is mentioned because the mistake has been several times repeated. Finlayson's discovery represents the earliest record of the species that we know of. He landed in the evening of January 9th, 1822, on Pulo Dinding, which he describes as a beautiful granite island, covered with almost impenetrable woods from the margin of the sea to the summit, and he then goes on to remark: "At about half a mile distant north from an old and ruined fort, once occupied by the Dutch, we found an *Epidendrum* of gigantic size, the most elegant plant perhaps of the numerous tribe to which it belongs. Nothing in the vegetable world could exceed in beauty the appearance of the stately plant as it stood erect on the stem of an aged tree, surrounded by its flowing leaves, rather resembling the frond of a palm than the leaf of an herbaceous plant. The flowering spike alone exceeded six feet in length, contained nearly one hundred flowers, and was now in full blossom. The flowers exhaled a most grateful but mild odour; they were about two inches and a half across, and upwards of four, including the foot-stalk, in length."—*Finlayson, Mission to Siam*, p. 35. Good specimens were procured, which were afterwards identified with Blume's plant, and are now preserved in the Lindley and Wallichian Herbaria at Kew (n. 7360).

Griffith afterwards collected a plant in Malacca which Lindley, in 1852,

described as a new species, under the name of *G. fastuosum* (*Paxt. Fl. Gard.*, ii. p. 159), and which at about the same time was also described and figured by Wight as a new genus, under the name of *Pattonia macrantha* (*Ic. Plant. Ind. Or.*, v. pt. i. p. 21, t. 1750). This Reichenbach called *Grammatophyllum macranthum* (*Xen. Orch.*, ii. p. 16), and he followed Lindley in citing *G. speciosum* as also collected in Malacca by Griffith, but the fact is that the second species cannot be distinguished, and is simply *G. speciosum*, Blume.

The species appears to be rather widely diffused, for Parish obtained it further north at Mergui, and Ridley records it from Singapore and numerous localities in the Malay Peninsula; while Korthals collected it in Borneo, and there are records from Sumatra and Bantam. Two Philippine records we believe belong to the allied *G. Wallisii*, Rchb. f., mentioned below, and a Moluccan record which arose through confusion with *G. scriptum*, Blume, must be expunged. Ridley also gives the locality, Solomon Islands, but we do not know on what authority. We only know one species from the Solomon Islands, *G. Cominsii*, which is mentioned below.

G. WALLISII, Rchb. f., was described in 1877 (*Linnæa*, xli. p. 107), being based on materials collected at Manila, by Wallis. It was described as nearly allied to *G. "giganteum"* (clearly a mistake for *speciosum*) and *G. macranthum*. We have not seen the original, but have little doubt in referring to it fine specimens afterwards collected in the Philippines by Loher, at Albay, in July, 1903, and Tayabas, in June, 1904, both in the island of Luzon. The general character is that of *G. speciosum*, but the flowers are rather smaller, with relatively broader segments. There are other records of a Philippine plant which may also be referred here, for J. van Volxem speaks of specimens of *G. speciosum* as growing on the highest forks of trees at Manila, "which no Orchid house in Europe is large enough to shelter," and he adds, "I even saw one of the finest in the full sun on a stunted tree in an opening in a brackish mangrove swamp" (*Gard. Chron.*, 1878, i. p. 588). Boxall also records *G. speciosum* as Philippine (*Blanco Fl. Philip.*, ed. 3, Nov. App. p. 245), but we suspect that both records refer to *G. Wallisii*.

G. PANTHERINUM, Rchb. f., was described a year later (*Gard. Chron.*, 1878, i. p. 788), from materials collected by Goldie in New Guinea, and sent to Mr. B. S. Williams. The flowers were described as being as large as those of *Cymbidium eburneum*, and the sepals and petals narrower than in *G. Wallisii*, but there are no hairs on the disc of the lip. Nothing further seems to be known about it.

G. LEOPARDINUM, Rchb. f., appeared ten years afterwards (*Flora*, 1888, p. 788), as a native of the Moluccas, but no clue was given to the collector.

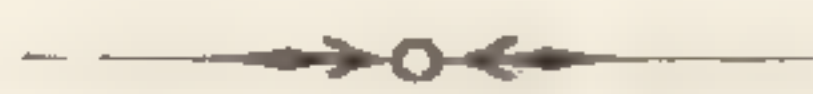
It was said to be near to *G. speciosum*, hence its inclusion in this section, but the vegetative organs were not described.

G. COMINSII, Rolfe, was described in 1891 (*Ann. Bot.*, v. p. 506), from materials collected at San Cristoval, one of the Solomon Islands. The flowers are smaller than in *G. speciosum*, and the petals relatively very broad, while the spots are rather small.

G. PAPUANUM, J. J. Sm., was described in 1911 (*Bull. Dep. Agric. Ind. Neerl.*, xlv. p. 11), from materials collected at the River Beguwri, in Dutch New Guinea, by Gjellerup. It was afterwards figured (*Lorents, N. Guin.*, viii. p. 596, t. 107), from flowers preserved in alcohol, hence the colour has gone, but we have the record that they were yellow spotted with brown. The habit approaches *G. speciosum*, but the flowers are smaller, and the segments exceptionally broad, while there are some hairs on the front of the lip.

It would be interesting if anyone having the opportunity would collect more materials of the New Guinea, Soloman Island, and Moluccan plants, so that their history may be completed. We can hardly hope to see the introduction of such giants alive, but we may conclude with a remark of Reichenbach, when *G. pantherinum* was described: "When shall we flower these grand Orchids? I do not hope that the Orchidists will take them up. The genuine Orchidist expects his pet to be satisfied with a very narrow space, and I have no doubt this was one of the hundred reasons which brought in fashion these lovely plants, which cannot be surpassed by any other kind. My hope is based on the increase of Palm-growing. . . . When those Palms which want the acme of moisture will be established in their rights, then the Grammatophylla may have a snug place with them, and they will no doubt feel gratified to do their duty by flowering."

R.A.R.



OCTOMERIA CRASSIFOLIA.—The fine plant of *Octomeria crassifolia* from the Lawrence collection is now flowering very profusely at Kew, recalling its condition three years ago when exhibited by the late Sir Trevor Lawrence, Bart. (*O.R.*, xix. p. 340). The species was described by Lindley in 1836 (*Hook. Comp. Bot. Mag.*, ii. p. 354), with the synonym "*O. graminifolia*, *Lodd. Bot. Cab.*, t. 1891 (not of Hooker)." The remark means that Lindley recognised it as distinct from the West Indian *O. graminifolia*, R. Br. (*Bot. Mag.*, t. 2794). *O. crassifolia* was imported from Rio de Janeiro, and flowered with Messrs. Loddiges, at Hackney. Afterwards it was described by Rodrigues as *O. densiflora* (*Gen. et Sp. Orch. Nov.*, ii. p. 97). In 1827, however, it was figured by Vellozo under the name of *Pleurothallis ruscifolia* (*Fl. Flum.*, ix. t. 26), and under the Vienna Rules the plant should be known as *Octomeria ruscifolia*.—R.A.R.

DENDROBIUM TOFFTII.

WITH reference to the note on *Dendrobium Tofftii* at page 360 of our last issue, Sir Jeremiah Colman writes: "As you have taken so much interest in this Dendrobe, I think you may like to see the enclosed photograph of a spray from a plant that flowered at Brisbane. Mr. Bartels,

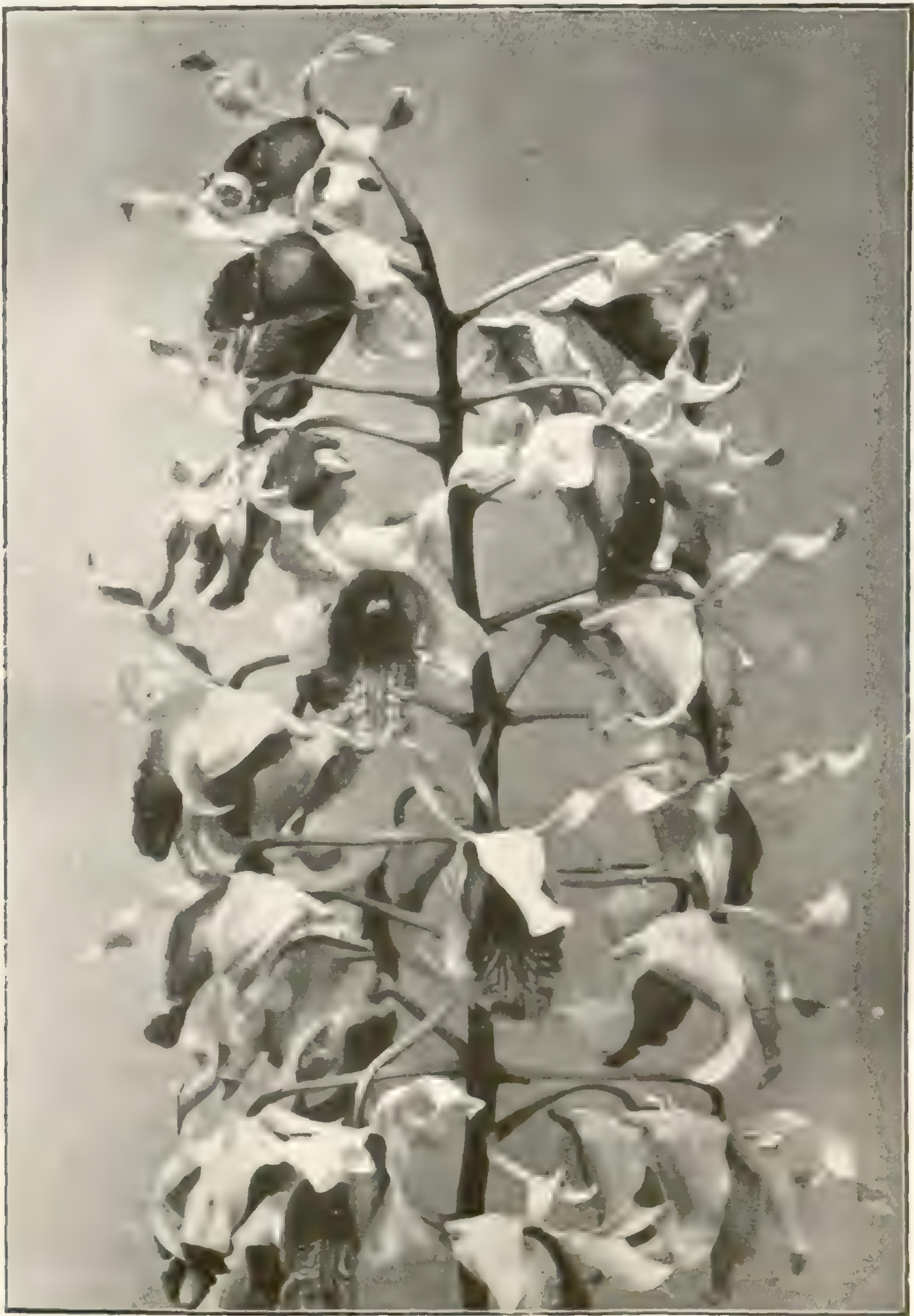


Fig. 1. *DENDROBIUM TOFFTII*.

the sender, is a very keen Orchidist, with whom I have for many years been in friendly correspondence. I reported to him the view taken, and think it not unlikely he may comment on it, in which case I will let you know, as

his information will be reliable. I cannot help thinking that the connection with *D. taurinum* must be remote, for the colour, and I think the lip, as well as the bulbs, are distinct from the *D. taurinum* for which I received an Award of Merit. It is also far more difficult to grow, for while *taurinum* nearly always flowers within a reasonable time after being imported, *D. Tofftii* had been in my houses for years before we could get it to flower. This may not prove very much, but I think the facts set out are sufficient to show that the two *Dendrobiums* are distinct species. I cannot offer any opinion as to whether the plant exhibited is identical with the one described by Mr. Bailey, though it seems to be known in Queensland as *D. Tofftii*. The bulbs are not nearly so long as described, though it may well be that under favourable circumstances they might attain the same length."

We thank Sir Jeremiah Colman for the opportunity of figuring this interesting Orchid, which shows what may be expected when his own plant attains its full development. The inflorescence shows about 24 flowers, and is represented under three-fourths natural size. We hope for further information to clear up the doubtful point.

R.A.R.



THE AMATEUR'S COLLECTION.

By C. ALWYN HARRISON.



THE dull winter months afford little opportunity for the amateur to enjoy and cultivate the outdoor garden to any great extent, but where a greenhouse is possessed, and devoted to easily grown Orchids, there is never any lack of enjoyment, for by careful selection, flowers may be had in full beauty throughout the cold and chilly weather.

Cypripediums are undoubtedly the Orchids *par excellence* for an amateur, for besides being free flowering, they are easily grown, and their handsome slipper-like flowers last many weeks in full beauty. At the present time, be careful only to give them sufficient water to keep the soil damp, and any which are in bud should be placed in a good light, and their scapes neatly tied to sticks. Be careful never to let any drip from the roof fall on to their blossoms, or they will speedily rot. Some of the earlier ones will now be passing out of bloom, and may be re-potted if they need it. Remove the plant carefully from the old pot, shake off the old soil, and wash the roots in tepid rain water. Then examine the plant, and cut away any dead roots, flower stems and decayed leaves, and sponge the remaining leaves. Fill a fresh pot two-thirds full of clean broken crocks, and on these set the plant, filling up to within half an inch of the rim with soil. Pot firmly, and keep the base of the leafy growths just below the rim of the pot. From experience, I prefer for compost a good mixture of loam, broken crocks, mortar rubble and clean chopped sphagnum moss, using it in a

slightly damp state. Be careful to have the soil as firm below as on the surface, as then watering can be carried out with complete satisfaction. For newly potted plants a good dose of water after the operation will be sufficient for several days, but for any not potted, only sufficient should be given to keep the compost from getting dry. If possible, newly potted plants will do better for a time at the warmer part of the house.

Owing to the skill of the hybridist, many hundreds of fine and beautiful crosses have been raised, and in the case of a beginner desiring to make a selection, I would advise a visit to some nursery in preference to giving a list, as individual tastes differ, but many magnificent varieties can be procured at the nominal cost of a few shillings each.

Oncidiums are also very gorgeous winter-flowering Orchids, bearing long spikes of yellow and brown blossoms, and are also of easy cultivation. To all those in bud or spike, give plenty of water to enable them to unfold their blooms to perfection, but as soon as any show signs of fading, cut the spike and keep the plants almost dry, giving only enough water to prevent the bulbs from shrivelling. The amateur need not feel disappointment at cutting off the spike when the flowers at the bottom begin to fade, for if it is placed in water to which is added a pinch of salt or nitre, the remaining blossoms will keep as fresh as if left on the plant, and the latter will be greatly encouraged in forming a strong healthy bulb for the ensuing year.

For the usual inmates of an Amateur's Orchid house, 50° Fahr. may be regarded as an average temperature suitable to their requirements, but regularity in this is of vital importance, coupled with the admission of fresh air and an atmosphere well laden with moisture. The bottom ventilators should be opened daily, if only for half an hour, as it will assist in keeping a buoyant and fresh interior atmosphere, and by syringing between the pots, and on the floor, usually every morning, sufficient humidity will be raised to meet the requirements of the plants. On no account spray the foliage, or over-water, especially at this season. If the temperature falls below 45° Fahr. at any time, the amateur need have no cause for fear, providing the requisite amount of heat is soon restored and that the plants and atmosphere were comparatively dry at the time.

Common sense and good judgment in regard to watering and ventilation are necessary in Orchid cultivation, and are of far greater importance than the particular aspect or construction of the house, as I have seen Orchids thriving under many strange conditions, but doing so because their immediate requirements were understood. In the event of a beginner reading these articles, I cannot too strongly impress the great importance of starting with good sound healthy plants of flowering size, and if such are procured, a collection of Orchids will give untold pleasure and just as little trouble as required by any ordinary greenhouse plant.

 ORCHIDS IN SOUTH MEXICO.

[The following article, entitled "Notes on some Orchids grown in Southern Mexico," received from an old and esteemed correspondent, will doubtless be read with interest, as it deals with the same species as those grown under very different conditions under our northern skies. Previous articles by Mr. Harvey will be found in vols. xi. pp. 354-358; xiii. pp. 250-251; and xiv. pp. 6-7.—ED.]

DENDROBIUM TAURINUM.—Three plants were received by me some six or seven years ago, with some other Orchids, from a friend in the Philippines, and were still attached to the pieces of limbs upon which they had been growing *in situ*, so I merely hung them up in moderate shade, but for some three or four years they languished—made few roots and weak, sappy growths, which, on the advent of the early summer rains, fell victims to the attacks of minute black beetles. Discouraged, I then hung them out in the blazing sun—90° F. in the shade—in company with *Diacrium bicornutum*. *Mirabile dictu*, they soon commenced to throw out new yellow shining roots, pretty well all over their blocks, started new leads from the imperfect ones, and finished off in December with nice plump little pseudobulbs, about eight inches high, with foliage bright shining green, nearly as hard as horn, increasing each year in size until last year, when the largest had reached thirty inches, and came into flower, producing a beautiful terminal arching flower-stem with ten flowers, typical as to shape, but quite different in colour. This species was originally described by Lindley, in 1843, as having the sepals yellowish green, rolled back at the points, very long deep purple twisted petals, and a paler purple lip. My plant, however, agreeing in everything but colour, has snowy white and amethyst purple coloration, no yellow or trace of green in the flowers, and is, I am bound to say, one of the most beautiful Dendrobes I possess. Subsequent authorities give similar descriptions to Lindley, but I fail to find any reference to this variety. I am now curious to see what the remaining two plants will produce.

DIACRIUM BICORNUTUM.—About a dozen plants were received some years ago direct from Trinidad, in exchange for Mexican Orchids, and were tried in small cedar-wood baskets, with pieces of charcoal, and were hung under the light shade of *Cassia javanica*. They did fairly well the first season, but gradually declined during the passage of the years, and all collapsed but two small pieces. Some few years ago I found out that they had been collected near the sea shore, growing in rocks exposed to the torrid sun. I promptly took these pieces from the baskets, cut away all

effete matter, washed and tied them to smooth, very hard wood pieces, and hung them out in an ardent sunshine, and there they have remained for the past three years, increasing in size and flowering freely. Would I had known the trick sooner, for they are lovely things, and I miss my other ten plants exceedingly—but experience teaches as nothing else does.

The following Dendrobies are grown in precisely the same manner described for *D. taurinum*, to wit: *D. formosum*, *D. Bensoni*, *D. crystallinum*, *D. aureum philippinense*, *D. Johannis*, *D. Phalænopsis*, *D. superbiens*, *D. bigibbum*, *D. albosanguineum*, *D. Draconis*, and *D. Goldiei*. This latter plant seems like a glorified form of *D. superbiens*, with wider sepals and petals and a richer and purer colour, otherwise there is little to distinguish it. Its vegetative aspect appears to me to be identical. In a batch of some dozen plants of *D. superbiens* I find considerable variations, a few having rather narrow segments, somewhat twisted, and comparatively poor in colour, a rather mottled pallid tone, while others are nearly equal in richness of tone to *D. Goldiei*, but not quite, for it is *facile princeps* of the three, and no collection should lack this fine plant where heat and sunshine can be provided. I have said “of the three,” meaning *D. Goldiei*, *D. bigibbum*, and *D. superbiens*, as I think *D. Phalænopsis* is entitled to a class by itself, with its many varietal forms.

The nobile section, including the many hybrids, is treated with some slight difference, being carried under light shade during the dry early spring months, where the young leads would burn if left in company with those above mentioned, but as soon as the rains are well in they are removed to full sun, as the high degree of saturation modifies the effect of the sun's rays. This also applies to *D. Wardianum*. The Philippine *D. superbum* is grown in slightly more than moderate shade, in company with *D. thyrsiflorum* and others of the evergreen section, but is removed to the cooler sunlight of December when the leaves commence to yellow off. In this way the stems ripen and never fail to bloom abundantly if strong. Similar treatment is given to *D. Pierardii*; more light, however, is provided for *D. primulinum* and *D. Parishii*. *D. Maccarthiæ* is a puzzle, remaining about at a standstill for three years, after having tried it every way but in full sun, which it is evident it will not bear. *D. luteolum* and *D. lituiflorum* seem to do best all the year through in very light shade, also *D. amœnum*. *D. Brymerianum*, I fear, I must dub a beast, and conclude it has a hard time of it in its native habitat. Possibly that is why it is scarce.

Perhaps of all the Dendrobies the hybrids are the most completely satisfying, providing abundance of beautiful flowers from the early spring months until the end of April or May, January being spring here. *D. pallens* is an exquisite thing; indeed these hybrid Dendrobies should not be allowed to fade away in Britain—as seems to be the tendency—their light,

airy grace and tender colouring not being equalled by the massive and more formal Cattleyas. Mixed collections in flower, including even small or curious botanical species, are more artistic, instructive and interesting than the somewhat monotonous assemblage of Cattleyas, no matter how gorgeous their colouring may be.

Just now I note in flower in my corridor or piazza, *Stanhopea* sp. from Peru, the latest flowering *Stanhopea* I have, and very fragrant. *Dendrobium Goldiei*, *D. bigibbum*, *D. superbiens*, *D. Phalænopsis*, the winter-flowering form of *D. formosum*, *D. mutabile*, *Trichopilia* sp. collected by the writer in woods near Panama, *Aspasia* sp. from the same region, *Angræcum pellucidum*, *Cœlogyne speciosa*, *C. Mayeriana*, *Calanthe vestita* and varieties, *Aërides Lawrenceæ*, *Vanda lamellata Boxallii*, *Chondrorhyncha Lipscombiæ*, collected near Panama, *Oncidium Kramerianum*, *O. iridifolium*, *Bulbophyllum* sp., *Phaius* sp. from Amboyna, flowers pure white with yellow on lip, *Brassia Lanceana*, *Brassavola nodosa*, a very large variety from Panama, a pretty *Gongora* I collected in Veraguas near the coast, a *Cynoches* or two, and some interesting *Catasetums*, which quickly attract the bright emerald-coloured bees which are never seen till the *Catasetums* come into flower. I am sure this modest flowering affords me more pleasure and interest than the same number of the most gorgeous Cattleyas.

AERIDES LAWRENCEÆ, a lovely thing, and perhaps the finest species of the genus, is grown in a Spanish cedar box, perforated at the bottom and sides with a number of inch holes, and filled with good-sized pieces of brick or stone. All the strong-growing species are managed in the same way, in moderate shade, giving no trouble whatever, and the smaller growers in blocks, hung up in light shade, and *Saccolabiums* similarly, with the exception of *S. Blumei*, which appears to do better in perforated boxes with rubble. *Vanda suavis*, *V. tricolor*, *V. luzonica*, and *V. Lowii*, also *Staurosis lissochiloides*, are treated in the same way.

Vanda teres in a box with rubble and leaf mould, with eight foot rods nailed to the corners of the box, up which the plant has climbed and made many branches, is standing in full sun the year through. Last season I think fifty or a hundred flowers were open at the same time, as there are some twenty-five branches and stems to my largest plant. *Renanthera coccinea* is managed in the same way. This, however, is yet but a modest plant some three feet high, and has not flowered. *R. Storiei* came to me from the Philippines about eight years ago, and, as the plants had suffered greatly in transit, and having but few roots, it took considerable time before they got strong enough to flower. Now, however, they are tremendous affairs, the highest being seven feet with several branches, and the stems almost as thick as one's finger. Very grand they are when in

flower, and grown in precisely the same way as *R. coccinea*, but with a little shade during the hottest and driest weather. Amateurs should try this fine plant. I do not observe any notices of its being much grown in Britain. I will gladly exchange a good 2½ or 3-foot piece, well rooted, for a plant of *Vanda Hookeriana*, which I do not possess.

I have a modest plant of *Vanda* (*Renanthera*) *Lowii*, received from England two years ago, and grown in the same way as the larger *Aërides*; it appears to be quite free. *V. Amesiana*, *V. Kimballiana*, *V. cœrulea*, *Renanthera Imschootiana*, and *Aërides Vandarum* languished and promised a collapse, so they were removed to Orizaba at 4000 feet, and have done splendidly. All are in full sun there, and strictly on long blocks, covering the same with roots, and thriving with many in the free air. I must not omit to say that *Vanda cœrulescens*—a pretty slow grower—does here finely in company with *Vanda teres*, tied to the block. Medium-sized imported plants take about three years to get into really good condition, capable of producing fine flowers as grown here. With us here, *V. Roxburghii* is tiresomely slow, and roots very slowly.

Vanda Sanderiana—ah! I pause a moment to take breath—truly a stubborn beast. It gets from 100 to 120 inches of rainfall per annum, sunlight or light shade as seems to be necessary, and the rains are distributed over eight months of the year, with a few showers during the dry season for good measure—that is all the water it gets (?) To this I may add a range of temperatures of from 70° to 95° F. for eight months and during the cooler months 60° to 80° as extremes. And of a verity my best plant has made three pairs of healthy leaves and a fair root growth—not a rotten one on the plant. It has actually accomplished all this in the trifle of seven years and eight months, to be very exact, and has flowered once. Is the game worth the candle? or what is the matter? My correspondent—an old friend, very competent and thoroughly reliable—collected my plants in Mindanas, and described minutely the conditions under which they were growing in company with *Aërides Lawrenceæ*. These conditions I have duplicated apparently, so I repeat, what is the matter? as their companion, *A. Lawrenceæ*, is a perfectly well-behaved Orchid.

Other Philippine sorts—warm growers—prosper exceedingly, such as *Vanda lamellata* and its variety *Boxallii*, *V. luzonica*, a recent introduction, *Aërides quinquevulnera*, *Cymbidium pendulum*—broad leaved variety—*Gramatophyllum Measuresianum*, *Platyclinis glumacea*, *P. filiformis*, *P. Cobbiana*, *P. latifolia*, and another species I do not know the name of. These latter are grown in baskets with polypodium fibre, surfaced with a short-growing native moss, and keep in excellent health, increasing yearly and flowering quite up to the mark. Some other species and genera

received from the same source do equally well. All plants on blocks are tied exclusively with the black fibre of *Arenga saccharifera*, a palm introduced here by me many years ago—I believe the most lasting fibre known and certainly far better than wire.

Phalænopsis I have abandoned, as every effort to protect them against certain winged insects has proved futile. *Cattleyas* and *Lælias* I tried years ago, but heat, excessive moisture, black rot, and minute maggots attacking the new growths put an end to the experiment, so the wreckage was removed to Orizaba where they have recovered and again become good flowering plants. I must except *Lælia rubescens*, which does well enough, also *Brassavola Digbyana* and *B. glauca*.

The warm-growing *Cœlogynes*, to wit, *C. pandurata*, *C. Mayeriana*, *C. tomentosa*, *C. speciosa*, *C. asperata*, *C. Micholitzii*, *C. Dayana*, and *C. Massangeana* are quite at home, and no insects seem to care for them.

ONCIDIUM LANCEANUM was sent to me by a Trinidad correspondent, and with this plant I started out with high hopes, the conditions being similar. Does it flourish? Not a bit of it. It broke all the rules, took on spot, got watery in the shade or burnt in the sun, stood stock still in half shade, invited every bug or other insect within striking distance to its embrace, then tried to flower at half cock and made a mess of it. The plants were grown on blocks, and at times made three and four foot long roots, but lost them for some occult reason. Last spring I removed these plants, *in articulo mortis*, to Orizaba, and singularly enough they have recovered, made thick unblemished leaves and good sound roots. How they will withstand the chilly nights of December and January I cannot guess, but for their sins here they will have to suffer, unaided by me. And anomalous enough it is to see them at present (November) in such contentment with *Cattleya citrina*, *Lælia majalis*, and *Epidendrum vitellinum*—perhaps a fool's paradise, who knows?

ONCIDIUM PAPILIO does well here on blocks, if watched carefully to see that the wood does not become sour nor decay. Prompt reblocking keeps them going—though they are much affected by a small white scale, also the deadly attacks of a small insect known here as the vanilla fly, which forms a little colony on the under side of the leaves and remains until the juices of the leaves are exhausted, the effect being like a bad case of thrips. Washing at intervals with soap and water has to be done, and is effectual. Thus attended to they keep on flowering at intervals from the same flower stalk. Some forms are better than others, larger or smaller zones of yellow on the large labellum, some brighter than others; altogether one of the most striking of Orchids.

I collected the closely allied *O. Kramerianum* some three years since in very damp lofty forests a few miles from Puerto Limon in Costa Rica.

This species is decidedly easier to grow here. Why neither scale nor Vanilla fly attack it is a mystery.

I have mentioned *Chondrorhyncha Lipscombiæ*. This I collected in shady woods about the centre of the Isthmus of Panama, not five miles from the Railway. I found but two little colonies, and diligent search for many days subsequently failed to reveal others, though two nice masses of *Catasetum scurra* were bagged. *C. Lipscombiæ* is a gem. It is a little tufted plant, which might easily be overlooked in the forests unless in bloom. The flowers are white, quite large for so small a plant, and the lip large, and



Fig. 2. *CHONDRORHYNCHA LIPSCOMBIÆ*.

faintly rayed and edged with violet or purple. It grows easily on a block in damp shade. *Catasetum scurra* is very distinct from most *Catasetums*, and has drooping racemes with greenish-white flowers, and for its fragrance alone it should command a place amongst choice plants. It grows well on a block in the sun, and endures nearly five months dry season in the Pacific side of Panama and the Veraguas province. There are geographical forms of this species, perhaps requiring slightly different treatment as to period of resting.

Those who grow Orchids under glass in the Boreal north must not think it is all beer and skittles growing them in the open in the tropics. There are mysteries to clear up. Even some of the Orchids of the district become rebellious once removed from the live bark upon which they are found growing. Such common things as *Epidendrum atropurpureum* and *E. Stamfordianum* begin to decline after the first or second season unless

reblocked on very hard wood just at the right time. Insects whose name is legion have to be considered, thrips, red spider, scale, larvæ, &c., have to be fought to the death, though vigorous well-grown plants are the least likely to be troubled. On the other hand there are no costly structures to consider, no fuel bills, no ventilators to be watched; nature provides both ample shade and the maximum of sunshine; the heavens do the watering, I will attest; and the net result for the lovers of this fascinating order of plants is the same: A perennial source of pleasure and interest.

Buena Ventura, Cascafal,
South Mexico.

J. C. HARVEY.

CALENDAR OF OPERATIONS FOR JANUARY.

By W. H. WHITE, for many years Orchid Grower to the
late Sir Trevor Lawrence, Bart., K.C.V.O.

FOR the benefit of new readers of the *Orchid Review*, of which I trust there will be many, especially young beginners in Orchid culture, I may commence by stating that I group the various structures in which the plants are grown into five divisions, namely: East Indian or hottest house, Cattleya house, Mexican house, Intermediate house, and Odontoglossum or Cool house, their respective temperatures for the present time being 60° to 65°, 55° to 60°, about 55°, 50° to 55°, and about 50°, the lower figures for night temperatures as maintained by fire heat, or a few degrees less during exceptionally severe nights, when the houses, owing to the unusual amount of fire-heat, are, comparatively speaking, dry, the higher by day, or a few degrees higher by sun-heat, which is beneficial to the inmates of all the houses.

ATMOSPHERIC CONDITIONS.—Up to the time of writing the weather has been comparatively mild, and, with a moderate use of fire-heat, no difficulty has been experienced in maintaining an evenly-balanced atmosphere in the various divisions; at the same time a splendid opportunity has been afforded to allow a free circulation of air, both night and day, an agent which, as every cultivator knows, is essential to the healthy development of the plants. Fresh air in moderation Orchids must have, as without it they do not thrive for long, and insufficient ventilation is, doubtless, one of the principal causes of spot and other forms of disease so often found amongst the plants. As an instance, only a short time ago I had the privilege of being shown through a well-known collection of Orchids, one small house being filled with moderate-sized plants of *Vanda cœrulea*, and it was pointed out that on a number of the young or topmost leaves a kind of watery exudation had recently made its appearance. Insufficient ventilation was at once suspected as the cause and an increase of top air was

suggested. This advice was at once carried out, at the same time the atmosphere of the house being kept somewhat drier, and after a few days it was seen that the marks in the leaves had dried up, and the disease was checked. I mention this principally to show that much good may be accomplished by anyone who will try to find out, and remedy the causes of failure.

Should mild weather continue, much caution will be required in the regulation of the various houses or divisions, as owing to the smaller amount of fire-heat required to keep up the desired temperatures, an over-abundance of moisture in the air is likely to exist, to counteract which the hot-water pipes should be made a trifle warmer, and more fresh air supplied.

In the five houses or divisions mentioned, almost every Orchid can be grown more or less well, but where a large number of some particular class has to be grown, it is advisable to give them a structure to themselves. Thus in many gardens there will be, besides those mentioned, a *Phalænopsis* house, a *Dendrobium* house, a *Cymbidium* house, &c. If any grower possessing only the five divisions mentioned should at any time find me advising the growing of a particular species or hybrid in one of the last-named houses, he may take it for granted that in some part of his houses conditions almost identical with those advised can be found.

At this particular period it will be noticeable in some collections that a few of the plants do not look quite so robust as they did at the end of the summer. Some may have their foliage looking rather more yellow than usual, others have their pseudobulbs slightly shrivelled, especially those that have bloomed during the past month or so. In such cases heavy waterings are too often afforded, in order to speedily make them green and plump, but such treatment should be avoided, as it invariably ends in the destruction of the roots, and in many cases brings disease into the leaves and pseudobulbs. A safe practice is to keep the plants rather on the dry side until growth or root action recommences, trusting principally to the maintenance of a genial atmosphere to pass them safely through the winter months.

CALANTHES.—From the middle of November to the end of the present month the different varieties of *Calanthe* of the *vestita* section will have been in bloom, and as the spikes are cut the short period of rest for the plants will commence. It will then be necessary to thoroughly harden and mature the pseudobulbs, so that, when the growing season commences, the new growths will start with increased vigour. Immediately the spikes are cut, water should be entirely withheld from the roots, and the plants may be placed on a dry shelf close to the roof glass of the house in which they have been growing, where they will obtain the benefit of all sunlight. Before putting the plants away in their resting quarters it is advisable to

closely examine and thoroughly clear the pseudobulbs from all scale insects. The late-flowering varieties of the *C. Regnieri* section, as *C. Sanderiana*, *C. Stevensii*, *C. nivalis*, *C. Williamsii*, &c., that bloom during the spring months, must still be treated as were those of the *C. vestita* section before their flowers open, that is, to afford them water occasionally, but not keep them too wet. If stood upon the stage, the spikes, after several flowers have opened, may be gently bent or tied over, so as to show the flowers off to the best advantage, or the plants may be stood upon the ground in a suitable position, away from draughts from the ventilators, and intermixed with Maiden-hair ferns. By arranging them in this way their strong arching spikes produce a charming effect. By being gradually bent over in their earlier stages the flower spikes of these *Calanthes* are extremely useful for decorative purposes generally.

PLATYCLINIS.—At this period of the year plants of the graceful spring-flowering *Platyclinis glumacea* will have commenced pushing up new growths, and should be brought well up to the roof glass of the *Cattleya* or Intermediate house. The pretty *P. uncata* will now be flowering from its half-grown breaks, and at this particular time, when it has to support its many flowers, and also to continue growing, abundance of water must be given to assist it. Both plants need plenty of moisture all through the growing period, and either, if they require it, may be afforded fresh rooting material at any time between the fading of the flowers and the finishing up of growth. Well-drained shallow pans that may be suspended from the roof, and a mixture of fibrous peat or osmunda fibre, with the addition of a little chopped sphagnum moss, will suit their requirements. The summer-flowering *P. filiformis*, being now at rest, should have its thin grass-like foliage sprayed over occasionally to keep it free from red-spider. All *Platyclinis* thrive well in the temperature advised for *P. glumacea*.

MILTONIAS.—All the species and natural hybrids of the Brazilian section of *Miltonias*, which include such well-known kinds as *M. spectabilis* and its variety *Moreliana*, should be examined to see if any of the plants are in need of more pot room, as the present is the proper season to repot them. Being dwarf plants they are best grown in shallow pans, which, with suitable copper wire handles attached, are easily suspended from the roof glass. As the new growths extend themselves rapidly in every direction, they require considerable space wherein to grow. All old and useless pseudobulbs should be cut away, and the growing pieces made up afresh. Those pieces which have but few roots to hold them steady should be pegged firmly down to the compost, as they will not succeed if at all loose. *M. Regnellii*, *M. Clowesii*, *M. Russelliana*, *M. bicolor*, *M. Lamarcheana*, and *M. candida*, with its variety *grandiflora*, being larger plants, are best grown in pots. The white-lipped *M. cuneata* is among the best of this

section, but the plant should not be disturbed now, as its flower spikes are well advanced. The whole of these Brazilian *Miltonias* will grow satisfactorily in a rather shady part of the Intermediate house. The plants certainly appreciate light, but direct sunshine often causes the foliage to become more yellow than is desirable. The pots or pans should be at least two-thirds full of drainage, and for a compost use hard coarse osmunda fibre, which should be cut up moderately fine, and be packed rather firmly around the rhizome of the plant. When repotting keep each plant elevated just a little above the rim of the pot, with the base of the leading growth just touching the compost, so that the young breaks now pushing will be free from anything likely to rot them. After repotting it is important to watch and see that the numerous small roots that will soon be pushing out from the growths are in no way injured or devoured by insects. For a month or two water must be afforded with great care, as the young growths are liable to decay if too much be given, but when re-established in the new compost the plants should be kept moist, and a little extra water may be afforded to each plant when the flower spikes appear.

CÆLIAS.—An interesting and pretty species which is in bloom at this season is *Cœlia bella*, its purple-tipped sepals and lip of canary yellow being very attractive. *C. Baueriana* and *C. macrostachya* are also worth attention. These *Cœlias* grow well in the ordinary Intermediate house, preferring a light position at all times. After the plants have flowered, the new growths readily start away, and quickly form young roots, and then it is advisable to repot, if the plants require it. The pots should be about half-full of drainage, with coarse osmunda fibre packed firmly around the base of the plant for the roots to ramble into. Water should be liberally afforded whilst growth is being made, but when at rest very little moisture is necessary.

CÆLOGYNES.—Another Orchid also in bloom is the rare *Cœlogyne Mooreana*. Its upright spikes of white and yellow flowers are very lovely, and they last a very long time in good condition. It is certainly a plant that deserves a place in every collection, however select it may be. The plant is quite easy to cultivate, requiring an intermediate temperature, and a well-drained compost of osmunda fibre and sphagnum moss to root in. The proper time to repot the plant is soon after the flowers have faded. Keep it always in a moderately-shaded position, and afford plenty of water during the growing season, and at other times the compost should be kept moist. Plants of the well-known *C. cristata* that have their flower spikes well advanced should be kept carefully watered, as over-watering or sprinkling the bloom spikes may cause them to decay. *C. elata* and *C. ocellata* are also pushing up their flower spikes, and need to be copiously

watered till the flowers fade. Species that have bloomed recently, as *C. Rossiana*, *C. graminifolia*, *C. sulphurea*, and *C. Cumingii* may be repotted if they require it. Plants of *C. flaccida* (Intermediate house), *C. Massangeana*, and *C. tomentosa* (Warm house) are at rest, requiring very little water at the root before the flower spikes appear, or growth recommences.

ZYGOPETALUMS.—Such Intermediate house plants as *Zygopetalum Mackayi*, *Z. crinitum*, the rare *Z. Ballii*, and others of this section should be repotted, if necessary, as they pass out of flower. As the two former species produce numerous large *Cattleya*-like roots, they need rather large pots, which, it is very important, should be well drained. Fibrous loam, chopped *osmunda* fibre, and sphagnum moss, in equal proportions, with plenty of broken crocks, well mixed together, form a suitable compost for all of these species and their hybrids to root in. Such scandent-growing species as *Z. maxillare*, and its variety *Gautieri*, with the rare white-lipped *Z. Sanderianum*, should now be attended to, as they will be starting into growth. Avoid disturbing these plants more than necessary, for if once they are removed from the blocks of tree-fern stems, or whatever their roots may be clinging to, they are not very easy to re-establish. A good method is to firmly fix a new piece of tree-fern on to the top of the old piece, and the young-growing rhizomes quickly take hold of the added portion. These plants when well flowered, are always appreciated, and the flowers, even when cut, last a long time in good condition. These *Zygopetalums* grow freely when suspended well up to the roof glass in a moderately-shaded position in the Intermediate house, and kept well supplied with water at all times, which may easily be done by lightly spraying them overhead every morning, and again early in the afternoon when the weather is fine. Thrips are their greatest enemies, and once they obtain a foothold in the young growths it is difficult to eradicate them, and the fresh green-growing shoots become irretrievably ruined, therefore all through the growing period these destructive insect pests must be persistently sought after and destroyed. Whether thrips be present or not it is advisable that whenever a house is being vaporised the plants should be subjected to the fumes, as this will check and prevent their increase. This practice cannot be too deeply impressed on the mind of the young beginner, because if such work is neglected until the young growing shoots become infested with these tiny insects, the growths seldom recover from their attack.

COOL HOUSE.—Plants of *Odontoglossum Edwardii*, or of its hybrids, which have recently bloomed and are starting well into growth should be attended to. If such plants as are well established, having sufficient rooting space and the drainage ascertained to be in good condition, a top-

dressing with a mixture of osmunda fibre and sphagnum moss will suffice, but if the drainage is imperfect, or the compost sour, then the plant must be repotted. Afford plenty of drainage materials, and after repotting keep the surface of the compost just moist until new roots are seen pushing their way into it. Small, well-rooted plants of *O. Edwardii*, having the surface of the compost in a fresh, healthy condition, and the growing sphagnum moss closely clipped down on to the soil, form a very suitable place to sow seed on of almost all cool-growing Orchids. The seeds should be spread very carefully and thinly over the surface, and be kept fairly moist at all times. A small propagating case at the warmest end of the Cool house is a suitable place until the young seedlings make their appearance, and after a short time the seed pots may be removed and placed in a somewhat lighter position in the same house, where they can be conveniently attended to. Should damp appear among the small seedlings during their early stages, it is advisable to remove them to a more airy position, and to elevate them a trifle nearer to the roof glass, and at the same time to keep them less moist.

SOPHRONITIS.—In this house plants of the glowing scarlet *Sophronitis grandiflora* will now be in bloom, and few if any Orchids produce a more brilliant effect than well-flowered plants of this species. The plants are best grown in well-drained shallow pans, using but a very thin layer of osmunda fibre for them to root in. Repotting may be done as soon as growth commences, or immediately after the flowers fade. During growth they need to be well supplied with water, less sufficing when the small pseudobulbs are fully made up. *S. cernua*, now seldom seen in bloom, requires the same treatment, but large flat imported pieces thrive best when fastened to teak boards, with a little compost to assist in keeping them moist. *S. violacea*, which is a pretty little species, does better when grown in the coolest part of the Intermediate house.

THE VIGOUR OF HYBRIDS.—Can you tell me, asks a correspondent, *why* it is that primary hybrids are nearly always more vigorous than their parents? We believe it is due to the reaction caused by differences in the constitutions and habits of the two parents, which sets up a constant stimulus to development. It is precisely parallel with the well-known benefits secured by cross-fertilisation. Darwin regarded it as essentially related to the principle of life, this principle, according to Mr. Herbert Spencer, consisting in “the incessant action and reaction of various forces, which, as throughout nature, are always tending towards an equilibrium; and when this tendency is slightly disturbed by any change the vital forces gain in power.” Crossing secures those changes in the conditions of life which are believed to benefit all living things.



ORCHIDS AT CHELTENHAM.



I RECENTLY had the pleasure of spending an interesting and profitable afternoon in the famous Nurseries of Messrs. Cypher & Sons, at Cheltenham. In all there are about 20 houses devoted to the culture of Orchids, and of course at this season *Cypripediums* occupy a prominent place, and few plants can equal them in regard to their lasting qualities. To say that there was a fine show is only a moderate estimate, for they were here by the hundred, as a matter of fact Mr. Cypher had the blooms counted, and they reached a total of over 3,500, without the numerous buds just ready to expand.

The best forms of *Cypripedium* *insigne* are largely grown, and the beautiful variety *Sanderæ* contributed to the varied display with upwards of 200 of its primrose yellow and white blooms. *C. insigne* Harefield Hall also was conspicuous with about 150 flowers, and the same remark applies to the varieties *Sanderianum*, *Cobbianum*, *Ernestii*, *Kathleen Corser*, and *Oddity*, of which latter the curious blossoms appeal to many. Other desirable *Cypripedes* noted are *Euryades*, the charming *Boltonii* with many twin-flowered scapes, *aureum* in variety, which gave promise of a fine display later on, the distinct *fulshawense*, *Eboriacum*, of the Harefield Hall type, the true *Prospero majus* with its delicate flowers, Mr. F. Sander, *Curtmani*, the richly-coloured *Tityus superbum* and *Milo* with twin-flowered spikes, the exquisite *Niobe Westonbirt* var., Mme. Jules Hye, the fine *Thalia* Mrs. F. Wellesley, and the closely-allied *Elatior*, *Minos Youngii*, and a host of other good things too numerous to mention.

To one like myself who is interested in seedlings, a large batch blooming for the first time attracted considerable attention. Many will be seen at the exhibitions as they become stronger and fully developed, and a few most promising crosses were: *Leeanum Clinkaberryanum* × *Clio*, a fine flower with massive bold dorsal sepal; *nitens magnificum* × *Æson giganteum*, which has a large number of reddish spots on the white ground of the dorsal sepal; *Niobe* × *Fairrieanum*, like a good edition of the former, and *Earl of Tankerville* × *Euryades*, also a notable hybrid.

In another division I saw the popular *Cypripedium* *Leeanum* in great variety, especially fine being the varieties *Clinkaberryanum*, the true *Corona*, *Gratrixiæ*, and *giganteum*. There were many large specimens on view, each with 16 or more beautiful flowers. Then the different forms of *C. Actæus* called for notice, particularly the distinct Mrs. Page, with a large area of white on the slightly incurved dorsal sepal, the pale *Milky Way*, A. J. Balfour, and *Drewett's* var., all excellent in their way. One grand feature

here is that each section or kind is grouped together, which renders comparison quite easy. All the *Cypripedium* family are extraordinarily well grown, and Mr. Cypher is to be heartily congratulated on such remarkable achievements.

The reader must not assume from these remarks that *Cypripediums* are the only Orchids cultivated successfully, for a high standard of culture is maintained all round, especially with the labiata section of *Cattleya*, the species of which will give a good account of themselves in due season. Among the *Læliocattleyas* in flower was a splendid variety of *Charlesworthii*, and *L.-c. Clive*, while the *Calanthes* were pushing up robust spikes, and just opening their flowers. The chaste *C. Harrisii* was much in evidence. *Catasetum macrocarpum* and *Ancistrochilus Thomsonianus* were also in bloom.

Of the *Lælias* special mention should be made, especially the white forms of *L. anceps*, which were pushing up spikes in great profusion, while the coloured forms were already producing a brilliant display. Other *Lælias* were *Gouldiana*, *albida*, and *autumnalis*. *Phaiocymbidium chardwarensense* was interesting with its erect scape of deep yellow flowers, and *Bonatea speciosa* was pushing up three strong spikes. A well-grown batch of *Cœlogyne intermedia*, a hybrid raised by Mr. Cypher from *C. cristata* *Lemoniana*, and *C. Massangeana* was also noted. The pretty *Epiphronitis Veitchii* is growing freely, and a few examples were in bloom. *Bulbophyllums* and *Cirrhopetalums* are included, and among the former was *B. Careyana*, which had several of its dense spikes of brownish flowers. *Masdevallia towarensis*, an excellent species for winter-flowering, was making a beautiful display, while the quaint *M. muscosa* and *M. Peristeria* were noted among the very complete collection of this interesting genus.

Dendrobium Phalænopsis is grown in quantity, and there were several varieties of merit, notably *delicata* and *alba*. Of those not in bloom *D. Thwaitesii* Veitch's var. calls for special mention, for a nice stock of this brilliant yellow *Dendrobe* is being worked up and each bulb shows an improvement upon its predecessor. Another choice plant was *D. Dalhousnobile*, which is in a most healthy condition. Large batches of *Vanda teres gigantea* and *V. cœrulea* are grown, and the same can be said of *Odontoglossums*, the showy scarlet *Odontiodas*, *Phaius*, *Lycastes*, especially *L. Skinneri alba*, *Sophronitis grandiflora*, *Oncidiums*, the long arching sprays of *O. varicosum* being much admired, and *Miltonia vexillaria* in variety.

In conclusion I must mention the fine *Anguloa Cliftonii*, the pretty little pink *Selenipedium Schlimii*, and the charming *Ornithidium Sophronitis*, which is very attractive when studded with its rather small red flowers. Throughout the establishment good culture was in evidence, and it was indeed a pleasure to visit such a nursery.

T. W. B.

 SOCIETIES.

ROYAL HORTICULTURAL.

A MEETING was held in the Royal Horticultural Hall, on December 1st, when there was a moderate display of Orchids, largely from trade exhibitors, and the awards consisted of four medals, and one Award of Merit.

Orchid Committee present: J. Gurney Fowler, Esq. (in the Chair), Messrs. J. O'Brien (hon. sec.), Gurney Wilson, W. Bolton, W. H. White, J. Wilson Potter, F. J. Hanbury, R. G. Thwaites, R. A. Rolfe, W. Cobb, F. M. Ogilvie, J. Charlesworth, C. H. Curtis, W. P. Bound, A. Dye, J. E. Shill, S. W. Flory, R. Brooman White, Sir Harry J. Veitch, and Sir Jeremiah Colman, Bart.

J. Gurney Fowler, Esq., Pembury (gr. Mr. Davis), sent *Cattleya Ballantineana*, *C. Venus Brackenhurst* var., with copper yellow sepals and petals, and a ruby red lip, a pretty albino from *C. labiata* Purity and *C. Gaskelliana* alba, and a good example of *Læliocattleya Ilione*, in which the characters of *L.-c. Dominiana* and *C. Bowringiana* are combined.

His Grace The Duke of Marlborough, Blenheim Palace (gr. Mr. Hunter), sent *Brassocattleya Ida* (*B.-c. Pluto* × *C. Dowiana aurea*), having greenish yellow sepals and petals mottled with rose, and a richly-coloured lip.

Messrs. Charlesworth & Co., Haywards Heath, staged a choice group of *Cattleyas* and *Læliocattleyas*, including *L.-c. Britannia alba*, with pure white sepals and petals; also some promising seedling *Miltonias*, *Odontiodas*, *Odontoglossums*, and a richly-coloured *Oncidioda Cooksoniæ*, and others (Silver Flora Medal).

Messrs. Sander & Sons, St. Albans, staged a good group of species and hybrids, including *Houlletia Sanderi*, *Oncidium anthrocrene*, *Cœlogyne Mooreana*, with some good *Cypripediums*, *Cattleyas*, and *Læliocattleyas*, among them being several promising seedlings (Silver Flora Medal).

Messrs. Stuart Low & Co., Jarvisbrook, Sussex, staged a bright group of *Cattleyas* and *Lælias*, with *Vanda Sanderiana* and *cœrulea*, *Dendrobium Phalænopsis hololeucum*, *Sophrocattlælia Lycia* (*L.-c. Cranstouniæ* × *Sophronitis grandiflora*), and others (Silver Banksian Medal).

Messrs. J. & A. McBean, Cooksbridge, staged a choice group, including several good *Cattleya Fabia*, a home-raised *C. Hardyana*, *Sophrocattleya Pearl*, and several good *Odontoglossums*, *Odontiodas*, and *Cypripediums* (Silver Banksian Medal).

Messrs. E. H. Davidson & Co., Twyford, sent *Cattleya O'Brieniana* alba with a six-flowered spike, and a fine *Odontoglossum eximium xanthotes*.

Messrs. Flory and Black, Orchid Nursery, Slough, sent the fine *Cypripedium Thalia* Veitch's variety, *C. Germaine Opoix*, and others.

Messrs. Hassall & Co., Southgate, sent a fine *Cattleya Dowiana aurea* from home-raised seeds, and several good *Cattleyas* and *Cypripediums*.

AWARD OF MERIT.

BRASSOCATTELEYA ADMIRAL JELlicoe VAR. PINK PEARL (*C. Rothschildiana* × *B.-c. Veitchii*).—A particularly well-shaped form, with soft rose-colouring, and a primrose yellow disc. Exhibited by Messrs. Stuart Low & Co.

At the meeting held on December 15th there was a good display, and the awards consisted of four medals, one Award of Merit, and one Cultural Commendation.

Orchid Committee present: J. Gurney Fowler, Esq. (in the Chair), Messrs. J. O'Brien (hon. sec.), G. Wilson, W. Bolton, R. A. Rolfe, J. W. Potter, F. J. Hanbury, A. McBean, W. Cobb, J. Charlesworth, J. Cypher, W. H. Hatcher, W. P. Bound, J. E. Shill, C. H. Curtis, A. Dye, W. H. White, S. W. Flory, S. Low, and Sir Harry J. Veitch.

J. Gurney Fowler, Esq., Pembury (gr. Mr. Davis), sent a handsome seedling *Odontoglossum*, and a richly-coloured *Læliocattleya* derived from *L.-c. Dominiana* × unknown.

R. W. Rickards, Esq., The Priory, Usk, sent *Odontoglossum Rickardsiæ* (*Rossii* × *percultum*), with spotted sepals, and rose-purple petals and lip, with a yellow crest, *Cypripedium Suzanne* (*glaucophyllum* × *Fairreanum*), *C. Priory Beauty* (*aureum* × *Antinous*), *C. nito-Cynthia*, and *C. Keeleyi*, said to be *C. gigas* × *Fairreanum*, but the latter not obvious.

W. Bolton, Esq., Wilderspool, Warrington, showed flowers of several seedlings from *Cypripedium Boltonii*, differing somewhat in shape, but retaining the white colour.

Walter Cobb, Esq., Normanhurst, Rusper (gr. Mr. Salter), showed the handsome *Odontoglossum percultum* Cobb's var.

H. S. Goodson, Esq., Fairlawn, Putney (gr. Mr. Day), sent *Sophrocattleya Annette* (*C. granulosa* × *S. grandiflora*), having rose-red flowers, with a yellow throat, and *Odontoglossum Lambeauianum* Goodson's var.

Pantia Ralli, Esq., Ashted Park, Surrey (gr. Mr. Farnes), sent the dark *Odontioda Brunette*, with chocolate purple flowers.

Baron Bruno Schröder, The Dell, Englefield Green (gr. Mr. Shill), sent a very finely-grown plant of *Cypripedium Moonbeam*, with three flowers.

R. G. Thwaites, Esq., Streatham (gr. Mr. Hannington), sent *Cattleya Pretoria* (*Peetersii* × *Dowiana aurea*), having rose-coloured sepals and petals, shaded with yellow, and a crimson lip with yellow veining, two *Maggie-Raphael alba*, *Sophrocattleya Ruby*, and others.

A. J. W. Warren, Esq., The Cedars, Epsom (gr. Mr. Bridges), sent a good seedling form of *Læliocattleya Clive*.

Messrs. Charlesworth & Co., Haywards Heath, staged a fine group, including several well-grown *Calanthe Veitchii*, *Miltonia Bleuana* and *St.-Andre*, *Cœlogyne Gardneri*, *Læliocattleya bella alba*, and L.-c. *Cornelia* (L. *Golden-Oriole* × C. *Empress-Frederick*), a beautiful yellow hybrid (Silver Flora Medal).

Messrs. J. Cypher & Sons, Cheltenham, staged a fine group of *Cypripediums*, including forms of *C. insigne* and *C. Leeanum*, and choice hybrids, one fine form being derived from *C. Beryl* and *C. Euryades*. There were also a few good *Masdevallias* (Silver Flora Medal).

Messrs. Sander & Sons, St. Albans, staged a fine group, including a row of well-grown *Lælia Gouldiana* at the back, with *Ansellia africana*, *Pleurothallis Roezlii*, various *Læliocattleyas* and *Odontoglossums*, and several interesting species (Silver Flora Medal).

Messrs. Stuart Low & Co., Jarvisbrook, showed a pretty little group, including *Vanda Sanderiana* and *cœrulea*, a fine *Cattleya Peetersii*, two white forms of *C. labiata*, *Brassocattleya Veitchii* *Queen Alexandra*, *Cypripedium Tracyanum*, and others (Silver Banksian Medal).

Messrs. Flory & Black, Orchid Nursery, Slough, sent *Læliocattleya Bola*, with white sepals and petals and a dark purple lip, L.-c. *Barbarossa*, *Stanhopea Wardii*, and the rare *Cirrhopetalum brunnescens*.

Messrs. J. & A. McBean, Cooksbridge, sent a good form of *Sophrocattleya Pearl* (S.-c. *Doris* × C. *Portia*).

AWARD OF MERIT.

LÆLIOCATTLEYA SIR DOUGLAS HAIG (L.-c. *Greenwoodii* × C. *Octave-Doin*).—A beautiful hybrid, having broad white sepals and petals, and the lip rich purple in front, with a yellow disc and the side lobes veined with rose. Exhibited by Messrs. Sander & Sons.

CULTURAL COMMENDATION.

ODONTOGLOSSUM CRISPUM LEONARD PERFECT.—To Mr. J. E. Shill, gr. to Baron Bruno Schröder, for a remarkably well-grown specimen, bearing two spikes of 14 and 15 flowers.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

At the meeting held at the Coal Exchange, Manchester, on December 3rd, 1914, the members of Committee present were: Rev. J. Crombleholme (in the Chair), Messrs. R. Ashworth, J. Bamber, J. J. Bolton, J. Cypher, J. Evans, A. Hanmer, J. Howes, A. J. Keeling, D. McLeod, W. J. Morgan, C. Parker, W. Shackleton, P. Smith, Z. A. Ward, G. Weatherby, and H. Arthur (Secretary).

Large Silver Medals were awarded to R. Ashworth, Esq., Newchurch (gr. Mr. Gilden); Z. A. Ward, Esq., Northenden (gr. Mr. Weatherby), and Messrs. Cypher & Sons, Cheltenham, for fine miscellaneous groups, in

all of which *Cypripediums* formed a conspicuous feature, whilst the last-named contained several promising seedlings.

Silver Medals were awarded to Wm. Thompson, Esq., Walton Grange (gr. Mr. Howes), Col. J. Rutherford, M.P., Blackburn (gr. Mr. Lupton), H. H. Bolton, Esq., Newchurch (gr. Mr. W. Eastwood), Messrs. Sander & Sons, St. Albans, and Messrs. A. J. Keeling & Sons, Bradford, for choice mixed groups.

A Special Vote of Thanks was awarded to O. O. Wrigley, Esq., Bridge Hall, Bury (gr. Mr. Rogers), for a group of well-grown *Vanda cœrulea*, the flowers being of excellent colour, with a plant of the rare variety *Wrigleyi* in the centre.

Interesting exhibits were also sent by P. Smith, Esq., Ashton-on-Mersey (gr. Mr. E. Thompson), H. J. Bromilow, Esq., Rann Lea (gr. Mr. Morgan), and Mr. W. Shackleton, Bradford.

FIRST-CLASS CERTIFICATE.

Cattleya Lady Joffre (*Trianae alba* × *Hardyana alba*), having flowers of good shape and substance, with pure white sepals and petals, and distinct markings on the lip, from Messrs. Cypher & Sons

AWARDS OF MERIT.

Odontoglossum Medusæ, *Cypripedium King Albert* (*chrysotoxum* × *Carola*), *C. Eve Walton Grange* var., all from Wm. Thompson, Esq.

Cypripedium Melas (*Priam* × *Baron Schröder*), and *Cattleya Murillo* (*Maroniæ* × *Dowiana aurea*), both from R. Ashworth, Esq.

Cypripedium Sanacderæ var. *Ethel*, and *C. Queen of the Belgians* (*Cynthia* × *alportense*), both from Messrs. Cypher & Sons.

Cypripedium Duke of Connaught Ward's var. (*Sallieri* × *Beryl*), from Z. A. Ward, Esq.

Cypripedium Mars (parentage unknown), from H. J. Bromilow, Esq.

CULTURAL CERTIFICATE.

To Mr. E. Rogers, gardener to O. O. Wrigley, Esq., for a group of *Vanda cœrulea*.

The meeting held on December 17th was a particularly successful one, and seventeen exhibitors put in an appearance, ten of whom were amateurs. The awards consisted of one Gold Medal, three Large Silver Medals, four Silver Medals, one Bronze Medal, three First-class Certificates, and fourteen Awards of Merit.

Members of Committee present: Rev. J. Crombleholme (in the Chair), Messrs. R. Ashworth, J. Bamber, J. J. Bolton, J. C. Cowan, J. Cypher, J. Evans, A. Hanmer, J. Howes, A. J. Keeling, D. McLeod, C. Parker, W. Shackleton, Z. A. Ward, G. Weatherby, and H. Arthur (Secretary).

O. O. Wrigley, Esq., Bury (gr. Mr. Rogers), staged a magnificent group

of about 150 plants, to which a Gold Medal was awarded. The varieties of *Cypripedium insigne* were a feature of the exhibit, including eleven beautiful yellow forms and many spotted, with a number of splendidly-grown hybrids. The centre of the group was composed of *Lælia anceps* and *Gouldiana*, with *Odontoglossums* of the *crispum* section.

Large Silver Medals were awarded to R. Ashworth, Esq., Newchurch (gr. Mr. Gilden), for a fine miscellaneous group; Z. A. Ward, Esq., Northenden (gr. Mr. Weatherby), for a group composed principally of choice *Odontoglossums* and *Cypripediums*; and to Messrs. A. J. Keeling & Sons, Bradford, for a fine general group.

Silver Medals were awarded to Wm. Thompson, Esq., Walton Grange (gr. Mr. Howes), and to Messrs. Sander & Sons, St. Albans, for fine miscellaneous groups; also to Col. J. Rutherford, M.P., Blackburn (gr. Mr. Lupton), and Messrs. Cypher & Sons, Cheltenham, for fine groups of *Cypripediums*.

Mrs. R. le Doux, West Derby (gr. Mr. Fletcher), received a Bronze Medal for a small group, including several choice *Cypripediums*.

Interesting exhibits were also sent by W. R. Lee, Esq., Heywood (gr. Mr. Branch), S. Gratrix, Esq., Whalley Range (gr. Mr. Brown), A. R. Handley, Esq., Didsbury, the Rev. J. Crombleholme, Clayton-le-Moors, Messrs. J. & A. McBean, Cooksbridge, The Liverpool Orchid Co., Gateacre, Mr. W. Shackleton, Bradford, and Mr. J. Birchenall, Alderley Edge, several of which appear in the list of Certificates (which is held over).

ORCHIDS IN SEASON.

SEVERAL interesting flowers are sent from the collection of R. G. Thwaites, Esq., Chessington, Streatham (gr. Mr. Hannington). *Cattleya Pretoria* (*Peetersii* × *Dowiana aurea*) is most like the latter in shape, and has yellow sepals and petals flushed with rose, and the lip purple crimson in front, with much yellow at the sides and in the throat. *Odontoglossum eximium xanthotes* is a tiny seedling blooming for the first time. The flower is good in shape, and pure white with a few orange yellow spots. It should develop into a good thing. *O. Vulture* (*tigrinum* × *Vuylstekei*) is also undeveloped, and has flowers heavily blotched with dark brown on a yellow ground. *Sophrocattleya Dorea* is from S.-c. *Doris* re-crossed with *C. Dowiana aurea*, and is a small seedling producing its first flower. The colour is salmon yellow, with a darker lip and some yellow veining on the sides. The petals are very broad and the lip enlarged by the *Cattleya* influence. It should develop into a good thing.

 ORCHIDS CULTURE IN FLORIDA.

OUR American friends have a rather wholesale way of watering their Orchids, and a very old correspondent, Mr. T. L. Mead, Oviedo, Florida, who has long included a few Orchids among his pets, sends us the following:—

“I have arranged a Gasoline (petrol) engine pump and over-head spray (fine) the whole length of the greenhouse, and also invented an automatic stop, so that all I have to do is to crank the engine, and leave it. It turns the spray from side to side of the house, and when the engine thinks the house is wet enough, it stops of itself! The opinion of the engine is, of course, an “inspired” one, and depends on the length of slack cord attached to the electric switch. I know the European practice would condemn such uniform watering, but we read that the rain descends upon the just and the unjust, and my arrangement imitates the natural distribution of rainfall when the plants are at home. Any plant requiring drought can be put opposite a plugged nozzle.”

As regards feeding, he remarks: “All summer I have been giving my *Phalænopsis Aphrodite* and *P. Schilleriana* plants a pinch of commercial fertiliser (intended for garden vegetables) every Sunday. They are suspended over a tank of water into which some of their roots dip, and they have grown most surprisingly, and are sending up very sturdy spikes.”

And he concludes: “The most interesting Orchid I have flowered was a *Cattleya Trianæ* × *Lælia tenebrosa*, the first bloom on a plant just seventeen years old.” It will be a form of *Læliocattleya Mabel*.

 ORCHID NOTES AND NEWS.

MEETINGS of the Royal Horticultural Society will be held at the Royal Horticultural Hall, Vincent Square, Westminster, on January 5th, 19th, and February 2nd. The Orchid Committee will meet at the usual hour, 12 o'clock noon.

The Manchester and North of England Orchid Society will meet at the Coal Exchange, Manchester, on January 7th, 21st, and February 4th. The Committee meets at noon, and the exhibits are open to the inspection of members and the public from 1 to 4 p.m.

HABENARIA HAVILANDII.—A striking Bornean *Habenaria* has just flowered at the Royal Botanic Gardens, Glasnevin, which proves to be

Habenaria Havilandii, Kränzl. (*Orch. Gen. et Sp.*, i. p. 427), a species originally collected on limestone at the Sarawak River by Dr. Haviland. We believe that *H. Hewittii*, Ridl., described about three years later (*Journ. R. As. Soc. Str.*, liv. p. 55), is identical. This also came from Sarawak, and the author described it as the biggest *Habenaria* he had seen from Borneo, with stems two feet high, and leaves 12 inches long by $2\frac{1}{2}$ inches broad. The inflorescence bears from fourteen to about twenty flowers, which are green with a white lip. Two years later Ridley described another Sarawak species under the name of *H. elatius* (*Sarawak Mus. Journ.*, ii. p. 37), which is evidently very nearly allied. Apart from this the species seems to be an isolated one.

R.A.R.



ORCHID PORTRAITS.



BRASSOCATTLEYA PINK PEARL.—*Gard. Mag.*, 1914, p. 819; *Garden*, 1214, p. 601, fig.

CATTLEYA HARDYANA VAR. RUTHERFORD.—*Horticulture*, 1914, p. 906, fig.

CATTLEYA LABIATA.—*Orch. World*, v. p. 50, fig.

CATTLEYA SKINNERI (specimen).—*Orch. World*, v. p. 59, fig.

CÆLOGYNE CRISTATA.—*Orch. World*, v. p. 63, fig.

CYPRIPEDIUM BOLTONII.—*Journ. Hort.*, 1914, ii. p. 337, fig.

CYPRIPEDIUM HELEN II. WESTONBIRT VAR.—*Journ. Hort.*, 1914, ii. p. 391, fig.

CYPRIPEDIUM JAMES BUCKINGHAM.—*Journ. Hort.*, 1914, ii. p. 390, fig.

CYPRIPEDIUM KING GEORGE V.—*Journ. Hort.*, 1914, ii. p. 381, fig.

DENDROBIUM BENSONIÆ.—*Orch. World*, v. pp. 58, 60, fig.

DENDROBIUM NOBILE (specimen).—*Journ. Hort.*, 1914, ii. p. 343, fig.

ONCIDIUM VARICOSUM.—*Orch. World*, v. p. 51, fig.; *Journ. Hort.*, 1914, ii. p. 355, fig.

VANDA SANDERIANA.—*Orch. World*, v. p. 52, fig.



ANSWERS TO CORRESPONDENTS.



[Orchids are named and questions answered here as far as possible. Correspondents are requested to give the native country or parentage of plants sent. An ADDRESSED postcard must be sent if a reply by post is desired (abroad, reply postcards should be used). Subjects of special interest will be dealt with in the body of the work]

J.F.S.—*Dendrobium ciliatum*, Parish, a native of Burma. The *Epidendrum* we have seen before and hope to find a specific name for it later.

J.C.H.—Many thanks for article. *Vanda Hookeriana* appears to be very rare in this country. We believe that it grows in full sun, and at a low elevation in a swampy district.

We have received from Francisco Delgado Q., Orchid Collector, Bogota, a price list of Colombian Orchids offered by him for sale.



The Orchid Review

VOL. XXIII.

FEBRUARY, 1915.

No. 266.



OUR NOTE BOOK.



THE time has not come for writing an article on the effect of War upon Orchidology, but we have received several letters of sympathy with the owners of collections within the war area, especially in Belgium, and of enquiry as to their safety, to which a reply may be attempted. It is, however, very difficult to obtain information, as the doings of Orchidists in other lands have been almost completely cut off by the colossal struggle. So far as we know these collections are safe, or were so recently, and we have information in four cases, but work in them is being carried on under enormous difficulties, many men being away at the front, and some even exiles from a land where it was generally supposed that the blessings of peace had been secured in perpetuity. It is one of the tragedies of the war that a peaceful little nation, whose neutrality the great powers had sworn to protect, should be the chief sufferer. This is not the place to discuss the merits of the question, but the efforts our own country made to avert the catastrophe, and the consequences of its failure, are already matters of history.

We have already alluded to the temporary suspension of French horticultural publications, and the remark applies equally to the Belgian, for the *Revue d'Horticulture Belge* and the *Tribune Horticole* have ceased to appear. In France, however, there are signs of renewed activity. The Journal of the Société Nationale d'Horticulture de France has again made its appearance. The present number is dated July-December, 1914, and contains a short account of the Society's doings. When mobilisation was ordered the work of the Society was interfered with by the absence of so many of its members at the front, and the President, M. Viger, therefore, on August 8th, called a meeting of those of his colleagues who remained in Paris, and it was decided that the meetings and the publication of the Journal of the Society should be temporarily suspended. The Society's Hall was also placed at the disposal of the Red Cross Society. A second meeting was

held on December 10th, and it was decided that the general meetings of the Society and of the Committees should be resumed, on the second Thursday in each month. The Council unanimously agreed that all ordinary and corresponding members of German and Austrian nationality, together with affiliated Societies of those nationalities, be struck off the list. This excludes sixteen German and five Austrian members, besides severing the connection with eleven affiliated Societies, all but one of which are German. The Journal contains accounts of the fortnightly meetings held in July, and of some meetings elsewhere, but there is little about Orchids.

After an enforced suspension of four months the *Revue Horticole* has made its reappearance, the number containing various items of war news, of which the following is the only one relating to Orchids:—

Dr. Jean Gratiot, of Ferté-sous-Jouarre, who recorded in June last some interesting Orchid seedlings, has preserved his greenhouses intact; his residence alone has been damaged by a shell, and the Germans, during their stay in the town, did not touch his plants.

There is also an account of the meeting of the Société Nationale d'Horticulture de France for January 15th, but no mention is made of any Orchid exhibits. Another issue is announced for February 15th, after which the *Revue* will be continued bi-monthly, though it is feared that it may have to be in a somewhat curtailed form for the present.

As to German periodicals and the doings of the German Orchid Society we have heard nothing. The *Gardeners' Chronicle*, however, in its issue of December 19th last, under the title of "Nomenclature and Anger," calls attention to a proposal made in *Moller's Deutsche Gartner-Zeitung* that in future the names of French and English novelties should be translated into German, and regrets that one of the leading horticultural papers in Germany should admit contributions of a kind which, though they find their way into the irresponsible press of all countries, are to be deplored when they appear in responsible journals. And it remarks, "if the new spirit leads to these outbursts we may hope that when cooler moments come the German horticulturists may prefer to retain the old—the spirit which made for brotherliness and friendly emulation and mutual respect." We desire to associate ourselves with such a dignified protest.

An unfortunate delay occasioned by the war is the International Botanical Congress which had been arranged to be held in London next May. A meeting of the Organising Committee was held at the Linnean Society's rooms on January 21st, when a report was given of the work of preparation which had already been carried out by the Executive

Committee. Resolutions were carried that the Congress be not held in 1915, and that the present Executive Committee continue to act as long as necessary. The Committee were strongly of opinion that the Congress in London should not be abandoned, and the suggestion was made that it might take place at the next quinquennium, in 1920. But it was agreed that nothing definite could be settled at the present time, and the following resolution was passed: "That the Executive Committee be authorised to convoke a meeting of the General Committee at some future date to consider the date of the Congress. It was also decided that in the meantime the General Committee be called together once a year. We particularly regret this unavoidable delay, because one of the subjects proposed for discussion was a discrepancy between the Vienna and Brussels Rules of Nomenclature, especially with regard to the specific names of hybrids. A copy of the proposition that has been submitted to meet the case was published at pp. 133-135 of our last volume. In the meantime we suggest that the proposals made should be adopted.

The way in which the war seems destined to leave a permanent mark upon Orchidology is in the matter of nomenclature, for we have now a crop of hybrids that have been named after persons or places that have become famous during the war, and often applied without reference to the requirements of the rules of nomenclature. Personal names of two or three words should be reserved for varieties. As specific names they are totally unsuitable, and their incongruity is at once seen when varietal names require to be added. Place names are seldom open to this objection. *Cypripedium Ypres* has recently appeared, and although the name may appear something of a novelty it accords with the principles of binomial nomenclature, inasmuch as the specific name consists of a single word. We mention this again because we are anxious to secure an orderly system of nomenclature, and there has been a considerable improvement of late, though some raisers do not yet appreciate the necessities of the case.

The following, which looks like a peep into the future, has reached us for publication:—

NOMENCLATURE.—At the last sitting of the Westminster Nomenclature Court, Mr. ——— was charged with attempting to impose a name that was not in conformity with law, and, further, with obstructing the Nomenclature Officer in the proper execution of his duty. Defendant, in answer to the charge, said he had no intention of making a disturbance, but he found complainant in the act of altering the name on his card, and he naturally objected. He thought everyone had the right to name his own plants just as he liked. The Chairman said that was a mistake, and

it was this practice that had led to the existing lamentable confusion. Committee after Committee had sat upon the question, and had drawn up rules upon the subject, but their time had been largely wasted because they had no power to enforce them, and now it had been found necessary to take more stringent measures. These rules were only intended to secure an orderly system of nomenclature. Defendant might apply any name that came within the limits of the rules, and such name could not hereafter be set aside. Incorrect names, however, received no protection, and it was an instruction to the responsible officer to see that they were at once amended. There had been too much laxity in the past. Defendant said he was willing to conform to any reasonable rule, and on this understanding the case was dismissed.

NEW HYBRIDS.

CATTLEYA PHYLLIS (Lueddemanniana Stanleyi $\times$ Schroederæ).—A handsome hybrid, fairly intermediate between the two parents, but the base of the lip narrowed as in the former parent. The petals and lip are very broad and undulate, and the colour soft rose, while the throat of the lip is light yellow. Exhibited at the R.H.S. meeting held on January 5th last by J. Gurney Fowler, Esq., Brackenhurst, Pembury.

LÆLIA ANCIBARINA (anceps $\times$ cinnabarina).—An interesting hybrid, exhibited at the R.H.S. meeting held on January 19th, by Messrs. Armstrong & Brown, Tunbridge Wells. The flowers are orange-yellow, and are borne on a long and slender scape, and thus most resemble the cinnabarina parent in general character.

CYMBIDIUM CASTOR (Woodhamsianum $\times$ insigne).—A promising hybrid from the collection of G. Hamilton-Smith, Esq., Finchley, of which a flower has been sent to us. It is most comparable with C. insigne, but has rather narrower, more acuminate sepals and petals, showing the influence of the original C. eburneum. That of C. Lowianum is not particularly obvious. The flowers are light yellow, with very numerous red-purple stripes on the lip, these passing into a few spots at the apex of the lobes. The keels are villous.

CYMBIDIUM FLORYI (grandiflorum $\times$ Veitchii).—A striking hybrid, exhibited at the R.H.S. meeting held on January 19th, by Messrs. Flory & Black, Slough. The flowers are large, and light green in colour, with numerous red-brown blotches on the lip.

ODONTOGLOSSUM NÆVROSS (nævium $\times$ Rossii).—A promising hybrid, exhibited at the R.H.S. meeting held on January 5th by Messrs. Armstrong & Brown, Tunbridge Wells. The plant was very small, and bore a single

flower, fairly intermediate in character. The sepals and petals are deep rose, the former irregularly blotched with chocolate brown, and the lip dark rose with a white area round the yellow crest.

 ORCHIDS IN SEASON.

THE interesting plant of *Catasetum macrocarpum* in the collection of G. Rae Fraser, Esq., Piggotts Manor, Letchmore Heath, whose history was given at page 334 of our last volume, is again in bloom, bearing a spike of nine male flowers. Mr. Fraser thinks this is the finest raceme it has produced.

A flower of *Lælia Susanna* (*pumila* × *Dayana*) has been sent from the collection of E. F. Clark, Esq., Evershot, Dorset. It bears a considerable resemblance to the latter, having distinct purple keels in the throat of the lip, though the ground colour there is yellow instead of white. The front lobe of the lip is deep purple, which colour extends round the apex of the side lobes. The sepals and petals are light purple. It unmistakably combines the characters of the two parents. The cross was made by Mr. Clark several years ago, and he remarks that the habit is suggestive of a rather large *L. pumila*.

A flower of *Odontioda Henryi* (*C. Noetzliana* × *O. harvengtense*) is sent by Messrs. Armstrong & Brown, Tunbridge Wells. Two or three plants have been recently exhibited, the colour being a nearly uniform shade of light scarlet-red, with the usual crest yellow.

ORCHIDS AT KEW.—Numerous botanical rarities are flowering at Kew, in addition to the usual showy species of the season. Among the former may be mentioned a plant of the interesting *Lælia Lundii*, which in habit closely resembles *Sophranitis violacea*, which is blooming freely beside it. *Pleurothallis astrophora* is a gem, though the individual flowers are so small as to require the aid of a lens to appreciate their beauty. *P. scapha*, however, is one of the largest flowered species in the genus, and its numerous racemes are very graceful. *P. Roezlii* is bearing a wealth of its curious dull purple flowers. *Saccolabium bellinum* with several flower scapes is as charming as its name indicates, and several pans of the pure white *Cynorchis compacta* are very attractive. Several plants of *Calanthe kewensis* are in bloom, and their bright rose flowers are particularly effective. One plant, it may be noted, is flowering in a clump of *Cypripedium*, where the seedling came up. *C. kewensis* was raised in the collection, from *C. Veitchii* crossed with the pollen of *C. rubens*, and was described at page 31 of our last volume.

THE AMATEUR'S COLLECTION.

By C. ALWYN HARRISON.

FEBRUARY is always a joyful month, for the amateur grower especially, as the days are now beginning to lengthen, and more light and sun will reach our plants, which is much appreciated in the form of renewed and increased growth.

Most of the *Cypripediums* will now be over, and, if needing it, any which have just finished blooming can be repotted in the manner advised last month, whilst those so treated in January will be rooting nicely in their new compost and will need a little more water. Usually at this time of year, assuming that a mean temperature of 50° Fahr. is maintained, and a little rise with sun heat, a good dose of water will be needed every other day, but in cold, sunless weather twice a week will often suffice. Since *Cypripediums* possess no pseudobulbs and cannot store up any nourishment for themselves, the amateur must be more liberal with his use of the watering-can for these Orchids than for those genera well furnished with pseudobulbs, as *Oncidium* and *Odontoglossum*, which will not require as much water yet.

If any *Oncidiums* are over, they must now be placed at the coolest end of the house to rest, for without this they will not flower satisfactorily the following season. Personally I like to see my plants rest at least three weeks before any sign of new growth is apparent, and in this way they make plump and healthy growths each year, and are then a pleasure to grow. In common with most hybrids of other sections, hybrid *Oncidiums* are very vigorous and free in flowering, and can be well recommended for an amateur's small house, as also the bigeneric hybrids between *Oncidium* and *Cochlioda*. These *Oncidiodas*, however, must not be given, after flowering, anything like the rest given to the species, and the amateur should endeavour to keep their compost always in an even state of moisture, damp but not sodden. The *Oncidiodas* are of comparatively recent origin, but several are now known, and *O. Cooksoniæ*, the hybrid between *Oncidium macranthum* and *Cochlioda Noëtzliana*, is a very striking thing. One word of caution may be necessary. Never allow a small and weakly plant to bloom, or it will be further weakened and may never properly recover. If any such plant is showing a spike, pinch this out as soon as visible, and keep the plant growing on, when, under normal conditions, a strong healthy bulb will be produced the following year.

As the days lengthen, the temperature will probably be inclined to run up during the day time, and, if so, a splendid chance is obtained for freely ventilating the house. I find that one can usually give a little top air about

the middle of this month, but only for a couple of hours or so, as the plants must not be chilled. It must be borne in mind that this top air is not warmed before reaching the plants, like that admitted by the bottom ventilators. Orchids, contrasted with Carnations and many greenhouse plants, are clean, and only suffer from pests and diseases owing to careless culture.

If the amateur starts with sound plants, and keeps a well-ventilated and moist atmosphere, he will be little troubled with insect foes. Slugs probably do the most damage, but can be caught in a variety of ways, putting treacle, fresh lettuce leaves, or bran on pieces of card about the staging and searching diligently in the evening with a candle. The safest way to protect a valuable plant in spike is to fill a saucer with water, stand an inverted flower pot in it, and then the Orchid on this. Many growers wrap cotton wool round the flower spikes, but this loses its efficacy immediately it gets wet, and a fresh piece must be substituted. Fire heat will still be needed, and I find it is much better to fire all day than merely to light a fire at night, and trust to the sun warming by day; for although a few hours of sunshine will give all the necessary heat, yet the ventilators would have to be shut, and this would deprive the Orchids of the air so necessary to their welfare. I always consider a little heat in the pipes, sunshine, and the ventilators judiciously open, the ideal growing conditions.

SUGGESTED ADDITION.

ODONTIODA DEVOSIANA.—For an amateur's collection this is one of the most useful members of this hybrid genus, for it produces long branching flower spikes, several feet in length, bearing often over a hundred small but brilliantly-coloured blossoms, of a rich purple-red with a spiny yellow crest. It is a vigorous grower, and small seedlings quickly develop into large sturdy specimens, and it can be procured at moderate cost. A position at the warmest end of the house is advisable, to enable this fine Orchid to develop to perfection. It was raised from *Cochlioda Noetzeliana* and *Odontoglossum Edwardii*, and first flowered in 1908.

ONCIDIUM PATULUM.—Under this name a Brazilian *Oncidium* has been described and figured by Schlechter as a new species (*Orchis*, viii. p. 18, t. 2). It flowered at the Royal Botanic Garden, Dahlem, and is said to be allied to *O. Cavendishianum*, Lindl. It is, however, identical with *O. nanum*, a species which flowered with Messrs. Loddiges at Hackney, in 1842, and was described by Lindley (*Bot. Reg.*, xxvi. Misc. p. 37). It is said to have been imported from Guiana. It most resembles a glorified edition of *O. pumilum*, Lindl., next to which Lindley placed it. It has very fleshy leaves, some five or six inches long, and short panicles of yellow flowers, with irregular red-brown blotches. Spruce also collected the species on the Rio Negro.—R.A.R.

 WINTER-FLOWERING CYPRIPEDIUMS.

THE great value of *Cypripediums* as winter-flowering plants has often been pointed out, and a magnificent series of some three dozen flowers, sent from the collection of W. P. Burkinshaw, Esq., Hessle, E.



Fig. 3. *CYPRIPEDIUM PRIAM*.

Yorks, by Mr. J. T. Barker, illustrates how indispensable they are at this dull season of the year. A house full of well-grown plants is indeed a sight worth seeing, and Mr. Barker remarks: "We have had and still have a most remarkable display." Two photographs are also sent, *C. Leeanum* var. *Corona* and *C. Priam* (*insigne* × *Niobe*), the latter being here reproduced as an illustration of the way they are grown at Hessle, which is further emphasised by the quality of the flowers sent.

The majority are hybrids, and it is interesting to note the preponderating influence of *C. insigne* among them, in fact, winter-flowering *Cypripediums* might almost be expressed as *C. insigne* and its derivatives, though there are



Fig. 4. MR. J. T. BARKER.

a few exceptions. There are five forms of *C. insigne*, the two fine yellows, *Sanderæ* and *Sanderianum*, the one known as *Chantinii Lindenii*, the large *Harefield Hall* var., and var. *Thompsonianum*, with very numerous dark blotches on the dorsal sepal. *C. Leeanum* is represented by seven well-known varieties in fine condition. *C. Venus* and its variety *Boltonii* are of a totally different type, representing the union of *C. niveum* with *C. insigne* and *C. i. Sanderæ* respectively, and showing many of the *insigne* qualities. The others are secondary or more complex hybrids, in which the *insigne* influence is strongly marked.

The *C. Fairrieanum* influence is seen in *C. Thalia* and its variety *Mrs. F. Wellesley*, and in the superb forms known as *Germaine Opoix* and *Gaston Bultel*, all represented by finely-developed flowers. It will afford

an idea of their quality when it is mentioned that the dorsal sepal of the last-named measures slightly over $2\frac{3}{4}$ inches across. Then follows a series of secondary hybrids, including the richly-coloured *C. Euryades splendens*, *C. Minos Youngii*, *C. Bruno* var. *nobile* (*Leeanum* $\times$ *Spicerianum*), most like an enlarged *Spicerianum*, *C. Actæus Hessle* var., *C. Ville de Paris*, *C. Earl of Tankerville*, the rare *C. Queen Alexandra Hessle* var., *C. Dreadnought*, and three seedlings raised in the collection from *C. insigne* *Harefield Hall* var. $\times$ *Polletianum*, most like the former, and one of them like a glorified edition of it. There are a few others, mostly well-known kinds, which we have not enumerated.

Mr. Barker has already described his method of culture in our pages, for it may be remembered that he wrote the Calendar of Operations from 1911 to 1913. It is also interesting to add that he recently gained the Gold Medal offered by the *Journal of Horticulture* for an essay on *Cypripedium insigne*, and we have to thank the Editor for permission to reproduce the same in our pages, also for the opportunity of giving Mr. Barker's portrait (see page 41). The following is the essay:—

CYPRIPEDIUM INSIGNE.

Since its introduction about the year 1819 few plants have been so extensively grown or proved of such horticultural value as *Cypripedium insigne* and its varieties. Originally discovered by Dr. Wallich, in the Sylhet district of North-east India, it flowered for the first time in this country in the Liverpool Botanic Garden in the autumn of 1820; it has been discovered subsequently by other collectors in different districts, hence the many varieties.

It is grown in almost every garden which contains a greenhouse, and under whatsoever conditions rarely fails to produce flowers. I have seen it grown under almost every condition imaginable—in windows, greenhouses, and stoves, and always it flourished. Plants growing under adverse conditions do not, of course, produce blossoms of the best quality; neither are they so effective either on the plants or in a cut state. The flowers, which are most varied, adapt themselves to almost every kind of decorative work, and are much prized during the dull, dark days of winter.

The flowering season of *C. insigne* extends from the early part of October until the end of February, and may be even prolonged by placing the plants in cooler quarters, and then again into heat some little time before the flowers are required. It may be grown as large specimens, or as small plants for decoration, for which the long-lasting properties of the flowers render it extremely valuable.

To those who reside near our great industrial centres, where fogs prevail and the atmosphere is heavily charged with obnoxious matters, these plants are indispensable, as they succeed where many others fail to grow.

AS A PARENT.

To this species chiefly we are indebted for the fine race of winter-flowering *Cypripediums* we now have in cultivation. It has been crossed with the majority of the species, many hybrids, and the varieties have even been crossed with each other, in some cases with excellent results.

Space forbids me giving even an outline of the many beautiful hybrids. Suffice to show the diversity of colour to state that the progeny varies from the almost pure white *C. Boltoni*, to the deepest hue.

An attempt to describe the numerous varieties would demand much more space than that at my disposal. I will only mention one or two of the best, because these demand no more space or skill in culture than the inferior ones, and they should, therefore, be given the preference. At the present day *C. insigne* must be divided into two sections, namely, those which produce yellow flowers, and those which produce spotted ones. Among the former *C. insigne Sanderæ* is still incomparably the best, followed closely by *C. i. Sanderianum*, *C. i. Gladys*, and *C. i. Glorie d'Anderghem*. Among the spotted varieties the large *C. insigne Harefield Hall* variety is much the best, judged either for size or colour; but it is followed closely by *C. i. superbum* and *C. i. Chantini*.

NOTES ON CULTIVATION.

As a plant in universal request, it is, as I have previously stated, grown under various conditions; but to achieve the finest results some definite routine of management is imperative. I am well aware that there are other modes of cultivation quite as successful as the one here laid down, but the line of practice is the one adopted by myself, and, if I may be allowed to say so, with the most gratifying results. It is the practical outcome of many years' experience.

The majority of the varieties are extremely vigorous of constitution, and so far defy bad and indifferent treatment as to render them suitable for amateurs who have not too much time to bestow upon the plants, but who love them nevertheless. An up-to-date collection of *C. insigne* is so varied that there must be differences in respect of their requirements. It will also be observed that there is considerable diversity in the width and strength of the foliage, as well as in the rooting systems of the plants. Such details must be carefully noted when potting the plants, the feeble rooters never being placed in large pots, while the strong growers may have a material shift as regards the size of pot.

C. insigne is often recommended as a Cool-house Orchid, but I have never seen a satisfactory specimen produced under these conditions, and I do not, therefore, advise that it should be treated as such. The flowers on the half-starved plants grown in a Cool house are midgets compared to those yielded under more favourable conditions. The plants succeed best in a

warm winter temperature of 55deg. to 60deg. During the summer months they must be shaded from strong sunshine, and the atmosphere must be kept humid at all times; much less moisture will suffice in the winter. A useful guide is the greater the heat the more the moisture, as they will withstand the heat provided that there is an abundance of moisture. The plants are best raised well up to the glass, to prevent the leaves becoming drawn. Fresh air should be supplied at all seasons.

POTTING.—The best time to repot the plants is shortly after flowering, when the half-developed new growths are about to push roots; if one can anticipate these roots, so much the better, as the plant then re-establishes itself more quickly. The pots must be clean and well-drained. A layer of two inches of clean crocks is ample, placed carefully in position, as drainage does not depend so much on the quantity of material used as the way in which it is disposed in the receptacles. In repotting the plants, as much as possible of the old material ought to be removed without damaging the roots, and the old woody rhizome must be cut away, as if allowed to remain it often causes decay in the centre.

COMPOST.—A suitable compost is made up as follows: Equal parts of peat, osmunda, *Ar*, and loam fibre mixed with a liberal addition of sphagnum moss. All the earthy particles should be removed from the peat and other fibres. The material must be made firm about the roots, and it ought to be heated to the same degree as the temperature of the house in which the plants are growing—this is easily accomplished by placing the compost in the house overnight.

PROPAGATION.—This is effected by division, and in the case of *C. i. Sanderæ* it can also be done by raising seedlings fertilised with its own pollen, which invariably come true. This is rather remarkable, as generally when this variety is used as a parent its progeny reverts to a normal type. It is not desirable to divide the plants into little scraps, as pieces of fair size produce flowers of the best quality, while small portions are not, in some cases, the best of growers.

WATERING.—The amount of water applied to the roots of any plant grown in a pot depends a great deal upon the nature of the compost. Should the material be close and retentive, much less water will be required than when an open and porous mixture is used. Soft water, whenever obtainable, should always be preferred, both for root application and spraying, and it should be as nearly as possible of the same temperature as the house. Cold hard water is liable to cause the young leaves to assume a brown rusty appearance, and to check the young roots.

After repotting, water with great caution until the new roots have freely entered the material; then the supply can be gradually increased, but a saturated condition must be avoided, as it causes a sour compost, in which

no plant delights. When the flowering period is over, keep the plants slightly on the dry side, but, having no pseudobulbs to support them, they must not be allowed to suffer through lack of water at any season. When in full growth the supply of water to the roots should be liberal, care being taken that the compost becomes dry between the applications.

CLEANLINESS.—This is essential, but when the plants are grown under correct conditions they are not subject to insect pests. Thrips and stock-seeded scale may, however, infest them, and it is advisable to sponge the leaves once or twice a year with some safe insecticide. The best times are, perhaps, just before the plants come into bloom and after repotting.

Should anyone have the inclination to acquire a complete set of varieties they would possess a collection of plants of no mean order. Although some people consider that *C. insigne* is a plant of the past, I am convinced that for winter flowering there is nothing which can rival it. As the flower spikes push up and attain to sufficient length they should be neatly tied to stakes to prevent twisting and to give the flowers a natural appearance.



ERIA BAMBUSIFOLIA. —A very distinct *Eria* has just flowered in the collection of H. J. Elwes, Esq., Colesborne, Glos., which proves to be *Eria bambusifolia*, a species originally described by Lindley in 1858 (*Journ. Linn. Soc.*, iii. p. 61), from materials collected at 2000 feet altitude in the Khasia Hills by Griffith, and also by Simons. Lindley remarked: "I have no species very nearly allied to this, whose great leaves, resembling a bamboo, and loose terminal panicles, as much as ten inches long, are very peculiar." It was afterwards collected in Sikkim by Sir J. D. Hooker, and later by Pantling, who figured it (*King & Pantling, Orch. Sikkim*, p. 119, t. 113). Gamble also met with the plant in the Ganjam Hill Tracts, and Robertson in the Southern Shan States, the latter describing it as growing from two to three feet high. It may be added that Mr. Elwes brought his plant from Sikkim. The racemes are distichously arranged from the upper leaf axils, and the flowers stand erect on the arching racemes, and are striped with red-purple lines on a pale ground. Two allied species were subsequently described, *E. crassicaulis*, Hook. f., from Khasia, and *E. leptocarpa*, Hook. f., from Perak, and Sir J. D. Hooker formed a new section of the genus, called *Bambusifoliæ*, for their reception. The plant will doubtless succeed under the same treatment as the evergreen *Dendrobiums* from the same region.

Eria is a large and widely diffused Indo-Malayan genus, containing several very distinct sections, but the species are not generally grown, chiefly because the flowers are seldom brightly coloured, and often rather fugacious. Several of them, however, are well-known in botanical collections.

R.A.R.

OBITUARY.

WILLIAM BRADBURY LATHAM.—This distinguished horticulturist, who was for thirty-five years Curator of the Birmingham Botanic Garden, passed away on December 17th last, within a few weeks of his eightieth birthday. Mr. Latham was an excellent all-round gardener, and very early in his career made his first acquaintance with our favourites, as he himself related to us when some years ago we had the pleasure of spending an evening with him at Edgbaston. Born on February 13th, 1835, he commenced his gardening career thirteen years later, and at the age of twenty entered the Royal Botanic Gardens, Kew, where he remained for two and a-half years, being employed in the Palm, Heath, Orchid, and Stove houses. Leaving in 1857, he went to Chatsworth, and soon afterwards for over a year to the Jardin des Plantes, Paris. On his return he was employed for six months in Messrs. Parker and Williams' Nursery at Holloway, and afterwards for eight years head gardener to Lt.-Col. Perkins, Birtley Hall, Chester-le-Street, where there was a good collection of Orchids. He was appointed Curator of the Birmingham Botanic Garden in 1868, on the retirement of Mr. Catlin, and during his term of office carried out great improvements there. Here Mr. Latham paid some attention to hybridising, and in 1888 flowered *Cypripedium Lathamianum*, obtained by crossing *C. Spicerianum* with *C. villosum*. Later on *C. edgbastonense* (*nitens* × *Chamberlainianum*) and *C. Deedmanianum* (*Spicerianum* × *Chamberlainianum*) also flowered. About thirteen years ago Mr. Latham was awarded the Veitchian Medal for distinguished services to horticulture. A portrait and an interesting account of Mr. Latham's other activities are given in the *Gardeners' Chronicle* for December 26th last. His remains were interred at Leighton Buzzard Cemetery on December 21st.

JULES HYE DE CROM.—We deeply regret to announce the death of M. Jules Hye de Crom, which took place on the evening of January 6th. The deceased was one of the oldest and most enthusiastic amateur Orchidists in Belgium, and has followed his favourite hobby for over thirty years. His name came into prominence in connection with *Cypripedium Lawrenceanum Hyeanaum*, or *C. Hyeanaum* as it was called when, in April, 1886, it was exhibited by the Compagnie Continentale d'Horticulture, and received a First-class Certificate from the R.H.S. It was afterwards purchased by M. Hye, who was then said to have every known species and hybrid of *Cypripedium* in his collection. In October, 1889, his portrait appeared in the *Orchidophile*, when he was described as one of the most enthusiastic

amateurs in Belgium, and an excellent cultivator who knew his Orchids as a shepherd knows his sheep. *Cypripediums* were then his chief favourites, but he was beginning to pay attention to *Cattleyas* and *Odontoglossums*. In 1893 he won the Gold Medal offered by His Majesty the King of the Belgians for the best 100 exotic Orchids. A year later a hybrid flowered in his collection which was to become famous, namely *Cypripedium aureum*, which he had raised from *C. Sallieri* *Hyea* $\times$ *Spicerianum*. It was named *C. aureum*, in allusion to its beautiful yellow colour, but soon afterwards all manner of variations began to appear among the seedlings, and a year later no fewer than eleven were exhibited together under as many different names, causing our appeal that all should be considered as varieties of the original. This view was ultimately adopted, though in the meantime the number of different names had grown to forty. Accounts of M. Hye's collection have appeared in our pages (*O.R.*, vi. pp. 206-207; xi. pp. 194-196), but since we had the pleasure of seeing it we believe that the houses have been moved and considerably extended. In 1913 M. Hye again showed at the Ghent Quinquennial, and a group of *Miltonias* and other Orchids showed by him was one of the features of the Show. He also won the Gold Medal for the best twelve *Odontoglossums* raised from seed. M. Hye has often appeared as an exhibitor at the London Shows, and it will be remembered that the mysterious loss of several choice Orchids shown by him was the sensation of the Temple Show in 1898. His death is a great loss to Orchidology. His name is commemorated in *Læliocattleya Hyeana*, *Odontoglossum crispum Hyeana*, and others. Our first intimation of the sad event was a telegram from a mutual friend, but we have since learnt that the death of the eminent Ghent Orchidist was due to heart failure brought on by business worry—he was a wine merchant—caused by the German occupation.

JAMES CLAY HARVEY.—We greatly regret to announce the death, on December 11th last, of Mr. J. C. Harvey, of Orizaba, Mexico, the writer of the article "Orchids in South Mexico" which appeared at pp. 12-18 of our January issue. The card announcing his death, at the age of 64 years, came to us as a shock, for on December 3rd he had written in his usual cheery style, and referred to the pleasant evening he spent with us on his last visit to England on the occasion of the Royal International Horticultural Exhibition less than three years ago. Until then we had only known him by correspondence, from which we learnt that he had a very large collection of tropical plants, including a great variety of Orchids, all grown under natural conditions. He was very fond of Orchids, and remarked that a good many years ago he cultivated quite a good selection of the showiest and most interesting kinds in California—of course under glass. But in South Mexico it was a great pleasure to attach them to the

proper trees, and simply watch them grow, with absolutely no care whatever, except to look out for an occasional attack of insects. The majority were natives of Mexico, and he remarked, "I have many hundreds of *Chysis bractescens*, *Oncidiums* of different species, *Stanhopeas*, *Lycastes*, *Brassias*, *Brassavolas*, *Epidendrums*, and a lot of purely botanical interest." He also gave some very interesting details of the conditions under which the plants grow naturally, and some of his experiences in collecting them. It had long been Mr. Harvey's desire to visit the Sierres of his district, but the cares of a large estate never seemed to admit of such a vacation, until the spring of 1903, when he had the good fortune to meet a Mexican engaged in collecting Orchids as a business, who acted as a guide. Their travels and discoveries form a most interesting chapter, and may be found by the references given last month. As to non-indigenous Orchids, we need only refer to Mr. Harvey's recent article.

CYPRIPEDIUM VENUS VAR. *BOLTONII*.—When the charming *Cypripedium Boltonii* originally appeared, in November, 1909, and received a First-class Certificate from the R.H.S., there was a doubt about its parentage, though it was then supposed to have been derived from *C. insigne Sanderæ* and *C. bellatulum album* (*O.R.*, xviii. pp. 19, 41, fig. 3). The plant passed into the collection of J. H. Craven, Esq., Keighley, Yorks., and received a First-class Certificate and a Silver Medal from the Manchester Orchid Society, when its resemblance to *C. Venus* was pointed out (*O.R.*, xviii. p. 24). Subsequent opportunities for comparison strengthened the belief that *C. niveum*, not *C. bellatulum album*, was the other parent, and information from Mr. Bolton now confirms this. A cross was made between *C. niveum* and *C. i. Sanderæ*, and the seeds were divided with Mr. J. Cowan. It was at first thought that nothing had come of the cross, but seedlings afterwards appeared which were evidently of this origin, and others were subsequently acquired from Mr. Cowan. The cross has since been repeated, both ways, and seedlings obtained which confirm the record, and we believe it has also been raised elsewhere. *C. Boltonii* has also been recrossed with both the original parents, and the seedlings recorded at page 27 of our last issue were from one or both of these crosses. They show some variation in shape, but it is interesting to note that the white colour of *C. niveum* seems dominant, a fact which foreshadows a possible race of white *Cypripediums* with the excellent constitution of *C. i. Sanderæ*. Of course there are minute purple spots on the dorsal sepal of *C. Boltonii*, but they can scarcely be considered a disfigurement, and they might be eliminated by further breeding and selection. We shall await the flowering of the remaining seedlings of these batches with interest, and we believe that other crosses of *C. Boltonii* are in existence.—R.A.R.

CÆLOGYNE MOOREANA.

THIS beautiful Annamese Cœlogyne is proving one of the best white-flowered species, and has appeared at several recent meetings in good condition. It was introduced by Messrs. Sander & Sons about nine years



Fig. 5. CÆLOGYNE MOOREANA.

ago, and flowered for the first time in December, 1906, when it received a First-class Certificate from the R.H.S., being dedicated to Sir F. W. Moore, Keeper of the Royal Botanic Garden, Glasnevin, who also flowered it at about the same time (*O.R.*, xv. p. 23). It grows on the Laos side of the Lang Bian Range, at 4300 feet elevation. The plant here figured flowered in the collection of Lt.-Col. Sir George L. Holford, K.C.V.O., at Westonbirt.



CALENDAR OF OPERATIONS FOR FEBRUARY.



By W. H. WHITE, for many years Orchid Grower to the
late Sir Trevor Lawrence, Bart., K.C.V.O.

DURING the month of February the daily amount of sunshine will be appreciably increased, and the temperatures of the various divisions considerably raised thereby during the middle hours of the day.

THRIP.—It is at this period that the small yellow thrip insects reappear in numbers, and multiply so fast that if immediate and proper means are not taken to destroy them they will eventually cause a great deal of damage to the plants. As there are now so few hands in many gardens to attend to such necessary work, owing to enlistment in His Majesty's forces, the extermination of these pests with brush and sponge will take up too much valuable time, and therefore constant vaporizing or fumigation must be resorted to. From this period onward it will be good practice to vaporize each house once a week. Some amateur growers may consider this method too expensive, and in such cases the plants may be lightly sprayed overhead with some safe but effectual insecticide. Which ever method is preferred it is much safer for such work to be done just before sunset than at any other time, as then there is no fear of any foliage being scorched by the sun's rays. Before commencing to vaporize, or spray, very little damping down should be done, but at the same time a moderately high temperature should be maintained, so as to induce the insects to emerge from their concealment, when they are easily destroyed. Should the next morning be fine and sunny the plants may be well sprayed overhead with clean tepid rain-water, which will partially remove or weaken any settlement of the insecticide, and act as a deterrent against any evil effects which may otherwise be caused by a sudden burst of strong sunshine.

SCALE.—Where time can be spared, it would be advisable to go thoroughly over all the plants, particularly those that are liable to the attacks of scale insects, which frequently not only establish themselves on the surface and under the leaves, but also behind the thin tissue of covering of many pseudobulbs, and low down in the axils of the leaves of many species, where it is sometimes very difficult to eradicate them. For these insects a small stiff brush or pointed stick will be best to remove them, and afterwards carefully sponge the whole of the plant. In cleaning tender and brittle-leaved plants, exceptional care is necessary, as it is not uncommon to see leaves of rare and valuable plants broken and disfigured during such work, and the damage done in the majority of cases is irreparable.

REPOTTING.—The potting of Orchids should generally commence about

this time of the year, although in large miscellaneous collections there is always some such work being done. Particular attention should be paid to unhealthy plants—a few of which are sure to be found in almost every Orchid collection—with a view to improving their condition. The best thing to do to such plants is to remove them from their present receptacles, and place them in as small a pot, pan, or basket as the roots can be got into, using a thin layer of compost just sufficient to steady them, and until such time as renewed activity takes place very little water must be applied. After receiving such attention these unhealthy pieces should be replaced in their respective divisions, and a genial growing atmosphere preserved around them, with the admission of plenty of light, but shading them from all sunshine.

MEXICAN HOUSE.—Probably owing to the comparatively mild weather we have lately experienced, many plants are showing renewed activity. For example, in the Mexican house such species as *Lælia* Gouldiana, albida, autumnalis, furfuracea, and the darker varieties of *L. anceps* (the lighter varieties, as *L. a. Sanderiana*, *Stella*, *Schröderiana*, *alba*, and others bloom several weeks later) have gone out of flower, and bunches of new roots are pushing from the base of the last made pseudobulb. Immediately this is observed supply fresh potting materials to such plants as may be necessary. Well-established specimens in pots or baskets that are sufficiently large for their needs should not be disturbed unnecessarily, but should the old compost have become loose and decayed it should be carefully removed with a pointed stick, and by washing out the fine soil which cannot be conveniently got at the drainage will be cleaned. The drainage should then be made perfect, and fresh materials added. For these Mexican species shallow pans or teak-wood baskets may be employed, and they should be of sufficient size to allow of at least two seasons growth. Whether remaking up a specimen or repotting each piece singly, it is not necessary to retain more than two or three pseudobulbs behind each leading growth. In repotting keep the rhizome of the plant just on a level with the rim of the pot, about one-half of the receptacle being filled with large clean crocks for drainage, and the compost should consist of coarse osmunda and Air fibre, out of which all dust has been sifted. Press the materials quite firmly together, especially along the base, or rhizome, of the plant. A few pieces of crock inserted here and there in the compost will render the passage of water rapid, which is always advisable for this particular class of plants.

SUBSEQUENT TREATMENT.—After the plants have been disturbed in this way a good deal of judgment is needed in affording water. In order to prevent decay and at the same time encourage root activity, the surface of the compost should be lightly sprayed over whenever it appears to be dry,

but as each specimen becomes firmly re-established increased supplies may be given. Endeavours should always be made by cultivators to prevent injury to the new roots by insects, such as wood-lice and cockroaches, both of which do much harm by gnawing them and destroying their succulent points. Beetlecute will destroy large numbers of them, but baits should also be freely employed, such as apple and potato, which should be hollowed out in the centre, and frequently examined, particularly at night and early morning. Old well-established specimens should also be carefully examined soon after each watering, as oftentimes wood-lice may then be seen on the surface, and especially near to the base of the pseudobulbs.

LÆLIOPSIS DOMINGENSIS.—This West Indian Orchid is still rare, and blooms at this season. Its flowers are produced on long slender stems, in a similar manner to those of the better-known *Lælia acuminata*, and they measure about two inches across, the colours being pale rosy mauve with purple veins and markings. The plant requires similar treatment to the Mexican *Lælias*.

ODONTOGLOSSUM CITROSMUM.—Suspended close to the roof glass in the same house as these *Lælias*, plants of the distinct Mexican *Odontoglossum citrosmum* will be starting into growth, but they should not be disturbed by repotting now. The new growths should not be unduly excited, by heat or otherwise, to make a rapid advance, or they will start away and produce no flower spikes at the proper season. Still keep the plants fairly on the dry side, but immediately the small white flower spike is seen pushing up through the centre of the growth, then the plant may be allowed more generous treatment, both as regards atmospheric moisture and a considerable increase of water at the roots.

CATTLEYA WALKERIANA.—In this house plants of *Cattleya Walkeriana* are about to flower, and will require a little more water at the root. This distinct species produces its flower spikes from the apex of short lateral growths which issue from the last-made bulb. The plants should be suspended in a light position near to the roof glass. A similar position should be found for plants of *C. O'Brieniana* and its pure white variety *alba*. As these plants are now dormant, they should be kept comparatively dry at the root till growth recommences, remembering that only a small amount of moisture is needed to retain the pseudobulbs in a plump, fresh condition.

EPIDENDRUM PARKINSONIANUM.—An interesting Orchid now flowering in this house is *Epidendrum Parkinsonianum*, a plant with very small bulbs, but with large fleshy leaves. Owing to the weight of the leaves the plant grows in a downward direction, suspended as it were by its roots. The flowers, which are produced from the base of the leaves, are of a pale yellow green, and the lip a good white. Like the allied *E. ciliare*, the flowers emit a strong sweet perfume at night. Its cultural requirements

present no great difficulty, and are met by merely fastening the plant on to a teak board or raft, suspending it in the lightest position available, and affording but little water at any time.

CATTLEYA HOUSE.—Among winter-flowering species of *Cattleya* the well-known and useful *C. Trianae* takes first place, with *C. chocoensis* and *C. Percivaliana* as useful companions. In addition to these there will be found many hybrid *Cattleyas*, *Laelias*, and *Laeliocattleyas* that also bloom at this season. A considerable number of these plants will now be pushing flower spikes up through their sheaths, and, in order to bring their flowers to perfection, a little extra water should be afforded them at the root, withholding it again when the blooms are fully expanded, after which, for the benefit of the plants, a very restricted supply is desirable till each plant commences to grow afresh. Such species as *C. Warneri*, *C. maxima*, and *C. Schilleriana*, also several of the *Laelia purpurata* hybrids, have commenced to grow, and it is advisable to place such plants in the lightest positions available. A very limited supply of water should be afforded them till new roots are seen pushing far and wide through the compost, when the quantity should be gradually increased.

CHYSIS.—In this house the deciduous epiphytal Orchids, *Chysis aurea*, *C. bractescens*, *C. Limminghei*, and *C. lævis*, also the distinct hybrids *C. Chelsonii* and *C. Sedenii* will now be starting into growth, and should no longer be kept under treatment suitable for plants at rest. For the present, and till the flower spikes—which push up along with the new growths—are visible, water should be sparingly applied, after which time the quantity may be considerably increased. Immediately the flowers fade the young breaks commence to emit new roots, and this is the best time to afford more root space to plants that require it. *Chysis* are best cultivated in pots, which may be suspended near to the roof glass, choosing rather small pots in preference to larger ones. In small pots very little drainage is needed, and the material for the roots to run into should consist only of coarse *osmunda* fibre, which should be packed firmly around the base of the pseudobulbs. The plants should be grown at the warmest end of the house, and if towards the end of the growing season they are late in finishing up their growth, a place should be found in the East India division, the extra warmth and moisture greatly assisting them to swell and complete their new pseudobulbs.

INTERMEDIATE HOUSE.—*Cypripedium insigne* and its numerous distinct varieties, especially the yellow-flowered var. *Sanderæ*, are general favourites amongst gardeners, a fact due to their vigorous constitution and easy culture. They thrive in almost any house from which cold winds and frost are excluded, provided attention be given in the matter of watering, potting, &c. Plants of this species, and many of its hybrids, produce

handsome flowers, which remain fresh for many weeks, their value for cutting and decorative purposes being highly appreciated. To prolong their flowering season it is a good plan to grow plants both in the Intermediate house and in the Cool house, for by so doing an almost continuous display may be obtained from November till late in the spring. These cooler-growing *Cypripediums* include such well-known varieties as *C. Charlesworthii*, *C. Lceanum*, *C. villosum*, *C. Boxallii*, *C. Hera*, *C. H. Euryades*, *C. Arthurianum*, *C. Actæus*, *C. A. langleyense*, *C. purpuratum*, and others, far too numerous to mention in the space allowed here, and the proper time for repotting them is at the end of the season of flowering. But unless the compost is sour or decayed, or a larger pot needed, annual repotting is not necessary. In repotting the plants do not raise them above the rim of the pot, but keep the surface of the compost just below it. The pots, if large, should be about half full of drainage, but small sizes will need less, and a compost should be used of rough fibry peat or osmunda fibre, good fibrous yellow loam and sphagnum moss, in equal parts, and mixed well together, with a moderate quantity of broken crocks to keep the whole porous. After being repotted keep the surface of the soil just moist, and when well rooted into the new compost the plants will require a plentiful supply of water all the year round.

CALANTHES of the evergreen section, as *C. veratrifolia*, *Masuca*, *Dominii*, *japonica*, *curculigoides*, and *natalensis*, now in full growth, must have liberal and frequent supplies of water, as they are strong, free-rooting terrestrial plants, and when they become pot-bound an occasional watering with weak liquid manure is beneficial to them. The members of this family are frequently troubled with a species of brown scale insect, which must be kept under by brush and sponge.

SOBRALIAS.—Opportunity should now be taken to remove all useless stems, cutting them down to the roots, thus making more room for the new growths, which are now making considerable progress, and should be tied out at equal distances apart so that plenty of light and air may pass freely between them. All strong, well-rooted plants of *Sobralias* will need copious waterings for many months to come.

MASDEVALLIAS.—Among the numerous species of this genus the pure white *M. towarensis* is a favourite. The plant will now be starting into growth, and the present is a suitable time for repotting or breaking up overgrown specimens, or such as have become bare of leaves towards the centre. The pots should be about three parts filled with clean crocks, and over the drainage a thin layer of rough, fresh, sphagnum moss, the rooting compost being osmunda fibre and moss in equal parts, both being previously chopped up rather finely and be well mixed together. I have seen plants thrive equally well when potted in well-drained osmunda fibre only.

Water should be very carefully applied after root disturbance, and until the young leaves are well advanced, for if kept too damp during this period some of the old leaves may fall off. During such mild weather as we have experienced during this winter the Cool house will be found suitable for plants of this species, but in cold frosty weather it will be advisable to remove the plants to the Intermediate house. The present is also an excellent time to break up old plants or to afford additional root room to such *Masdevallias* as *M. Chimæra*, *Wallisii*, *Backhouseana*, *Houtteana*, *nycterina*, *bella*, and others of that section. They should in every case be grown in baskets, as their flowers are produced in a downward direction. No crocks must be used for drainage. These plants will root in the same compost as *M. towarensis*, and require the same temperature. When well established they delight in copious overhead waterings, which is always helpful in warding off the attacks of red spider, to which the leaves of all this section of *Masdevallias* are extremely liable.

SOCIETIES.

ROYAL HORTICULTURAL.

THE first meeting of the new year was held at the Royal Horticultural Hall, Vincent Square, Westminster, on January 5th, and produced a moderate display of Orchids, including five medal groups, while one First-class Certificate, four Awards of Merit, and one Cultural Commendation were given to choice things.

Orchid Committee present: J. Gurney Fowler, Esq. (in the Chair), Messrs. J. O'Brien (hon. sec.), Gurney Wilson, W. Bolton, de Barri Crawshay, W. H. White, J. E. Shill, A. Dye, W. P. Bound, W. H. Hatcher, J. Cypher, W. Cobb, G. F. Moore, F. J. Hanbury, F. M. Ogilvie, A. McBean, T. Armstrong, R. G. Thwaites, S. Low, C. H. Curtis, R. A. Rolfe, Sir Harry J. Veitch, and Sir Jeremiah Colman, Bart.

Sir Jeremiah Colman, Bart., Gatton Park (gr. Mr. Collier), showed two interesting *Odontiodas*, *O. Othello* (*Odm. Othello* × *Oda. gattonensis*), most resembling the former in shape and colour, and another from *Odm. crispum* × *Oda. gattonensis*, most like a small sulphur yellow *O. crispum*, the scarlet of the original *C. Noëtzliana* being eliminated. He also sent the handsome *Cymbidium* Queen of Gatton (*C. Lady Colman* × *insigne*).

J. Gurney Fowler, Esq., Brackenhurst, Pembury (gr. Mr. Davis), showed a flower of *Cattleya Phyllis* (*Lueddemanniana Stanleyi* × *Schroederæ*), soft rose-pink in colour, with broad, undulate petals and lip.

H. S. Goodson, Esq., Fairlawn, Putney (gr. Mr. Day), sent *Odontoglossum Wiganianum* Goodson's var., and two pretty *Odontiodas*.

F. J. O. Montagu, Esq., Lynford, Norfolk, sent *Cypripedium Archimedes* (insigne Harefield Hall var. $\times$ nitens magnificum).

Baron Bruno Schröder, The Dell, Englefield Green (gr. Mr. Shill), sent a well-grown *Cypripedium Hera-Beeckmanii*.

R. G. Thwaites, Esq., Chessington, Streatham (gr. Mr. Hannington), sent three promising seedling *Odontoglossum eximium xanthotes*, a good dark *O. percultum*, *Sophrocattleya Saxa*, and a few others.

Messrs. Armstrong & Brown, Tunbridge Wells, staged a fine group, including about thirty plants of *Cattleya Maggie-Raphael alba*, a beautiful example of *Oncidium corynephorum*, a fine form of *Odontoglossum Thompsonianum* (*O. Adrianæ* $\times$ *Rolfeæ*), *Cypripedium Helena* var. *Armstrongiæ*, *Miltonia Bleuana*, *Brassocattleya Leemannia*, and a few good *Læliocattleyas* (Silver Flora Medal).

Messrs. Charlesworth & Co., Haywards Heath, staged a fine group, including a beautiful example of *Angræcum recurvum* with about two dozen flowers, a fine *A. sesquipedale*, the beautiful albino *Zygopetalum Mackayi Charlesworthii*, a very fine *Sophrocattleya Saxa* (*S. grandiflora* $\times$ *C. Trianæ Uplands* var.), with a brilliant crimson flower, *Odontoglossum Dora*, *crispum*, *Aireworth*, and *armainvillierense xanthotes*, *Odontioda Royal-Gem*, *Sophrolælia heatonensis*, and some good *Cattleyas* and *Læliocattleyas* (Silver Flora Medal).

Messrs. James Cypher & Sons, Cheltenham, staged a fine group of *Cypripediums*, including a series of *C. insigne* and *Leeanum*, *C. triumphans*, *C. aureum virginale*, and numerous other good hybrids (Silver Banksian Medal).

Messrs. J. & A. McBean, Cooksbridge, staged a group of well-grown plants, including good examples of *Cymbidium Doris*, *Gottianum*, and *Alexanderi*, *Lælia anceps* and *autumnalis*, *Odontioda Diana* and *Bradshawiæ*, with a few good *Læliocattleyas* and *Cypripediums* (Silver Banksian Medal).

Messrs. Sander & Sons, St. Albans, staged a good group, including *Cattleya Maggie-Raphael alba* and forms of *C. Trianæ*, *Lælia albida* and *L. anceps Sanderiana*, a well-flowered *Restrepia striata*, *Phaius maculatus*, *Xylobium squalens*, the rare *Odontoglossum nevadense*, *Sophrocattleya Goldfinch*, and various other interesting things (Silver Banksian Medal).

Messrs. Flory & Black, Slough, showed *Læliocattleya Queen Elizabeth* (*L.-c. Gottoiana* $\times$ *C. Carmen*), with lilac coloured sepals and petals, and a ruby purple lip with two yellow blotches in the throat.

Messrs. Hassall & Co., Southgate, sent a good form of *Læliocattleya Cecilia* (*C. Trianæ* $\times$ *L.-c. luminosa*), having salmon yellow sepals and petals, and a ruby crimson lip.

FIRST-CLASS CERTIFICATE.

CYPRIPEDIUM CHRISTOPHER VAR. GRAND DUKE NICHOLAS (Actæus Mrs. F. H. Cann × Leeannum Corona).—A very fine form, most resembling the latter in general character, and having a very broad, white dorsal sepal, with a small green base and numerous purple spots. Exhibited by G. F. Moore, Esq., Bourton-on-the-Water (gr. Mr. W. H. Page).

AWARDS OF MERIT.

CYMBIDIUM CONINGSBYANUM BROCKHURST VAR. (grandiflorum × insigne).—A fine form, having light yellow sepals and petals tinged with pink, and the lip with numerous red spots. The plant bore two strong spikes. Exhibited by F. J. Hanbury, Esq., Brockhurst, East Grinstead.

CYPRIPEDIUM ARTHURIANUM LANGLEYENSE (insigne Harefield Hall var. × Fairrieanum).—A particularly fine form, having a very broad dorsal sepal, with large dark brown blotches. Exhibited by Messrs. Flory & Black.

CYPRIPEDIUM PYRAMUS VAR. CHARDWAR IDEAL (Hera Euryades × Mrs. Wm. Mostyn).—A finely-shaped flower, having the dorsal sepal very broad, white, blotched with chocolate-red, and the petals and lip yellow with mahogany brown tinge and markings. Exhibited by G. F. Moore, Esq.

ODONTOGLOSSUM EXIMIUM XANTHOTES (armainvillierense xanthotes × crispum virginale).—A very beautiful white form, with a yellow crest to the lip, and an occasional yellow spot on the segments. Exhibited by Sir Jeremiah Colman, Bart. The plant was finely grown, and bore a very strong spike, gaining a Cultural Commendation for the grower, Mr. J. Collier.

At the meeting held on January 19th the Orchids were rather less numerous, and the awards consisted of four medals and two First-class Certificates.

Orchid Committee present: J. Gurney Fowler, Esq. (in the Chair), Messrs. J. O'Brien (hon. sec.), C. J. Lucas, Gurney Wilson, W. H. White, T. Armstrong, J. Charlesworth, A. Dye, S. W. Flory, F. Sander, R. G. Thwaites, J. E. Shill, C. H. Curtis, W. Cobb, F. M. Ogilvie, R. A. Rolfe, F. J. Hanbury, W. Bolton, Sir Harry J. Veitch and Sir Jeremiah Colman, Bart.

J. Gurney Fowler, Esq., Brackenhurst, Pembury (gr. Mr. Davis), sent a well-grown plant of *Odontonia Lairesseæ*, bearing a fine panicle of bloom, the handsome *Odontioda Latona*, which is remarkable for the heavy violet-purple blotches on the segments, and a few young seedling *Cattleyas* showing the early development of the pseudobulbs.

Sir M. E. M. Buller, Broomhill, Spratton, Northants (gr. Mr. Kench), sent *Sophrocattleya Wellesleyæ* Broomhill var., bearing a bright rosy crimson flower.

His Grace The Duke of Marlborough, Blenheim Palace (gr. Mr. Hunter), sent *Cypripedium Iona* (*bellatulum* × *Fairrieanum*), and *C. Euphemia* (*Euryades* × *Earl of Tankerville*), a well-blotched flower most like the former.

Baron Bruno Schröder, The Dell, Englefield Green (gr. Mr. Shill), sent *Cattleya Trianæ Dorothy*, with remarkably broad petals, and the colour lilac-purple, with the front of the lip ruby-purple and the disc orange.

Messrs. Armstrong & Brown, Tunbridge Wells, staged a large and handsome group, chiefly made up of the beautiful *Cattleya Maggie-Raphael alba*, with some good *Cypripediums*, including *C. Monte* (*nitens* × *Fairrieanum*), *C. Pyrrha* (*Charlesworthii* × *Druryi*), *C. Beryl* × *Sallieri*, a fine flower, with a predominance of yellow in the coloration, *Miltonia Bleuana*, *Dendrobium chessingtonense*, and *Odontioda Henryi* (*Odm. harvengtense* × *C. Noetzliana*), with orange red flowers (Silver Flora Medal).

Messrs. Stuart Low & Co., Jarvisbrook, Sussex, staged a bright group, containing a profusely-flowered *Miltonia Phalænopsis*, *Dendrobium Wardianum*, *Odontoglossum Uroskinneri*, *O. Artemis*, a richly-coloured form, *O. armainvillierense*, *Odontioda Diana*, *Lælia anceps Rœblingiana*, *Cattleya Percivaliana grandiflora*, and others (Silver Banksian Medal).

Messrs. J. & A. McBean, Cooksbridge, staged a good group, including fine forms of *Cymbidium Alexanderi*, *Schlegelii* and *Gottianum*, the latter with three racemes, *Sophrocattleya November*, *Lælia anceps Schroederiana*, *Cattleya Maggie-Raphael alba*, *Odontioda Euterpe* and *Diana*, and a few good *Cypripediums* (Silver Banksian Medal).

Messrs. Sander & Sons, St. Albans, staged an interesting group, including *Cattleya Percivaliana Albatross*, *Cœlogyne Mooreana* and *lentiginosa*, *Dendrobium aureum*, *Masdevallia ignea* and *Hincksiana*, *Læliocattleya Trimyra*, *Bulbophyllum Medusæ*, *Odontioda Devosiana*, two well-flowered plants of the singular little *Epidendrum laterale*, with short basal raceme of pale green flowers, and several good *Cypripediums* (Silver Banksian Medal).

Messrs. E. H. Davidson & Co., Orchid Dene, Twyford, showed *Odontoglossum Fletcherianum nigrescens*, with heavily blotched flowers, and a fine *Cattleya Maggie-Raphael alba*, having white sepals and petals and a crimson lip veined with yellow.

Messrs. Flory and Black, Slough, sent *Cymbidium Floryi* (*grandiflorum* × *Veitchii*), a fine thing, having light green sepals and petals, and a white lip with many small red spots.

FIRST-CLASS CERTIFICATES.

BRASSOCATTELEYA CLIFTONII ALBENS (B.-c. *Veitchii* Queen Alexandra × *C. Trianæ alba*).—A finely-shaped flower, nearly pure white in front, but with a distinct purple tinge at the back of the sepals, and the disc of the lip yellow. Exhibited by J. Gurney Fowler, Esq.

DENDROBIUM TRIUMPH (pulchellum (Dalhousieanum) × thyrsiflorum). —A very fine thing, resembling the former, both in habit and floral character, but more white in the ground colour. The raceme bore five flowers. Exhibited by J. Gurney Fowler, Esq.

MANCHESTER AND NORTH OF ENGLAND.

The following are the awards given at the meeting held on December 17th, 1914, which was crowded out of our last report at p. 30 :—

FIRST-CLASS CERTIFICATES.

Cypripedium Vashtii (Adrastus Mariæ × LEEANUM giganteum), a grandly-shaped flower, the dorsal sepal rather finer than C. Alcibiades illustre, and C. Idina Lee's var. (insigne Harefield Hall × Countess of Carnarvon), a very large and finely-shaped flower, with well-blotched dorsal sepal, both from W. R. Lee, Esq.

Odontoglossum Admiral Sturdee (parentage unknown), an almost round flower, with very broad sepals and petals and the violet colour extending over the whole surface, from Messrs. J. & A. McBean.

AWARDS OF MERIT.

Odontoglossum crispum Dr. J. E. Helm, O. eximium var. Zenith; Odontioda Brewii var. Rembrandt, and O. Diana Ashlands var., all from R. Ashworth, Esq.

Odontoglossum Lawre-crispum (Lawrenceanum × crispum), Cypripedium Actæus Palatine (Leeanum giganteum × insigne Harefield Hall), C. Alabaster Walton Grange var. (Alcibiades × Godseffianum), and Cattleya Leda Walton Grange var. (Dowiana aurea × Percivaliana), all from Wm. Thompson, Esq.

Cypripedium eboriacum Gratrixiæ (nitens × insigne Harefield Hall), and C. Bessie (aureum × Antinous), both from S. Gratrix, Esq.

Odontoglossum Esthwaite, parents unknown, from A. R. Handley, Esq.

Cymbidium Alexanderi rubellum, and Brassocattleya Eileen (B.-c. Fournieri × C. labiata albens), both from A. J. Keeling & Sons.

Cypripedium Grand Duke, parentage unknown, from the Liverpool Orchid and Nursery Co.

At the meeting held at the Coal Exchange, Manchester, on January 7th, 1915, the members of Committee present were :—Rev. J. Crombholme (in the Chair), Messrs. R. Ashworth, J. C. Cowan, J. Cypher, J. Evans, A. J. Keeling, D. McLeod, W. J. Morgan, C. Parker, W. Shackleton, H. Thorp, Z. A. Ward, and H. Arthur (Secretary).

R. Ashworth, Esq., Newchurch (gr. Mr. Gilden), staged a group, to which a Silver-gilt Medal was awarded. It included Odontoglossum Jasper, Blue John, eximium, Wilckeanum Empress of India, Lambeauianum

var. Humming Bird, crispum Josephine, and others, *Odontiodas*, *Cypripedium LEEANUM* *Gratrixiæ* and *Lavertonianum*, *C. Minos Youngii*, Earl of Tankerville, *Carola*, *aureum Hyeaenum*, *The King*, *Orion*, *Bellum*, *nitens Prince Olaf*, and others; *Lælia anceps Sanderiana*, *Læliocattleya bletchleyensis*, *Cattleya O'Brienana alba*, *Masdevallias Schröderiana* and *tovarensis*, and others.

Mrs. R. le Doux, West Derby (gr. Mr. J. W. Fletcher), was awarded a Silver Medal for a group, including *Odontoglossums* Mrs. Hattie Barreiss, *Dora*, *Christopher Geddis*, *Cypripediums* *Queen Alexandra*, *Rossetti*, *Tommy Syers*, *Bernal Bagshaw*, *Lord Ossulston*, Mrs. Florence Boundy, *Læliocattleya Neleus Marlfield* var., and others.

Rev. J. Crombleholme, Clayton-le-Moors (gr. Mr. E. Marshall), was also awarded a Silver Medal for an interesting group of home-raised *Cypripedium* seedlings, about thirty plants, showing great variety, three of which gained awards.

Col. J. Rutherford, M.P., Blackburn (gr. Mr. Lupton), staged a group of well-grown *Cypripediums*, including *King George*, *Beacon magnificum*, *Dante*, *Actæus langleyense*, *Memnon inversum*, *Antinous*, *Leeanum giganteum* and *Balliæ*, Earl of Tankerville, *insigne Sanderæ* and *citrinum*, with others, a Silver Medal being awarded.

F. A. Hindley, Esq., Great Horton, Bradford, was awarded a Silver Medal for a group of *Cypripediums*, including *Leeanum Hindleyanum*, *Clinkaberryanum*, *Corona giganteum*, and *Keeling's* var., *insignes Sanderæ*, *Laura Kimball*, *Ernestii*, *Harefield Hall*, and *Alberta*, *Euryades New Hall Hey*, *Actæus revolutum*, Earl of Tankerville, *Parkerianum*, *rawdonsense*, *Hitchinsia magnificum*, *Thalia giganteum*, Mrs. F. Wellesley, and others.

The Hon. Robert James, Richmond, Yorks (gr. Mr. Benstead), sent three handsome Orchids, each of which gained an award.

H. J. Bromilow, Esq., Rann Lea (gr. Mr. W. J. Morgan), staged seedling *Cypripediums*, *C. alportense* × *Fairrieanum*, Earl of Tankerville × *Fairrieanum*, Lord Wolmer × *Charlesworthii*, and *Leeanum Corona* × *bellatulum album*.

Mrs. Gratrix, Whalley Range (gr. Mr. J. Brown), sent *Cypripedium Princess Patricia* of Connaught.

Messrs. Cypher & Sons, Cheltenham, were awarded a Silver Medal for a group of *Cypripediums*, including Mrs. F. Godman, *Actæus Miss Cann*, *Sybil*, *Leeanum Clinkaberryanum*, *Euryades splendens*, *triumphans*, *Curtmanii punctatum*, *Sanacderæ*, *Arthurianum Sanderæ*, and a number of fine unnamed seedlings.

Messrs. Sander & Sons, St. Albans, were also awarded a Silver Medal for a mixed group, including some choice *Cypripediums*, *Odontoglossum Ypres*, *waltonense*, *harvengtense*, *Rossii*, and *O. eximium* × *Wilckeanum*,

Cattleya Maggie-Raphael alba, *Læliocattleya* Mauretania and Phryne, *Brassocattleya* Sedenii, *Lælia* Gouldiana, and others.

Mr. W. Shackleton, Bradford, was awarded a Bronze Medal for a group, including a fine variety of *Odontoglossum crispum*, with *Cypripedium* and *Odontioda* seedlings in variety.

Messrs. A. J. Keeling & Sons, Bradford, staged *Lælia anceps* Hardyana, *Cypripedium keighleyense* and *C. venustum* Measuresianum, also a fine *Odontioda*.

Mr. J. Evans, Congleton, sent *Cattleya* Pittiana × *Brassocattleya* Fournieri.

FIRST-CLASS CERTIFICATES.

Cypripedium Lady Evelyn James (*Leeanum* Lavertonianum × aureum virginale), a large flower with magnificent flat dorsal sepal, from the Hon. Robert James.

Cypripedium Lathamianum var. Cardinal Mercier, a gigantic flower, of red colour, excelling all others of the type, raised and exhibited by Rev. J. Crombleholme.

AWARDS OF MERIT.

Cypripedium Hassallii St. Mary's var., and *Actæus* St. Mary's var., raised and exhibited by the Rev. J. Crombleholme.

Odontioda Rossendale (*Odm.* Ceres × *Oda.* Charlesworthii), *Oncidium* varicosum var. Buttercup, both from R. Ashworth, Esq.

Cypripedium × Richmond (parentage unknown), from the Hon. Robert James.

AWARD OF APPRECIATION.

Calanthe Jezebel (*atrorubens* × Wm. Murray), from the Hon. Robert James.

At the meeting held on January 21st the members of Committee present were: Rev. J. Crombleholme (in the Chair), Messrs. R. Ashworth, J. Bamber, J. J. Bolton, J. C. Cowan, J. Cypher, J. Evans, J. Howes, A. J. Keeling, D. McLeod, C. Parker, W. Shackleton, H. Thorp, Z. A. Ward, and H. Arthur (Secretary).

Silver-gilt Medals were awarded to R. Ashworth, Esq., Newchurch (gr. Mr. Gilden), and W. Thompson, Esq., Walton Grange (gr. Mr. Howes), for very fine miscellaneous groups, in both of which *Odontoglossums* and *Cypripediums* were particularly well represented.

Silver Medals were awarded to Col. J. Rutherford, M.P., Blackburn (gr. Mr. Lupton); F. A. Hindley, Esq., Bradford; Messrs. Cypher & Sons, Cheltenham; Messrs. A. J. Keeling & Sons, Bradford, and Mr. W. Shackleton, Bradford, for fine groups, the latter including an interesting series of *Odontioda* seedlings showing much diversity in form and colour.

Interesting exhibits were staged by O. O. Wrigley, Esq., Bury (gr. Mr. Rogers), Messrs. Sander & Sons, St. Albans, and Mr. J. Evans, Lymm, Mr. Wrigley's exhibit being the distinct and pretty little *Cirrhopetalum gracillimum*.

AWARDS OF MERIT.

Odontoglossum Nerissa (*O. nævium majus* × blotched *crispum*), *Cypripedium Mrs. Arkle*, *C. Euryades* var. *Rex*, and *Læliocattleya waltonensis*, all from Wm. Thompson, Esq.

Cypripedium nobile (*insigne* Harefield Hall × *Beeckmanii*), and *Odontoglossum crispum* Sir Trevor, both from R. Ashworth, Esq.

Cypripedium Longford Hall (*insigne* Harefield Hall × *alportense*), from S. Gratrix, Esq.

Odontioda Schroederi aurea, from Mr. W. Shackleton.

Cattleya Percivaliana King of the Belgians, from Mr. J. Evans.

ORCHID NOTES AND NEWS.

TWO meetings of the Royal Horticultural Society will be held at the Royal Horticultural Hall, Vincent Square, Westminster, during February, on the 2nd and 16th. The Orchid Committee will meet at the usual hour, 12 o'clock noon.

The Manchester and North of England Orchid Society will meet at the Coal Exchange, Manchester, on February 4th and 18th. The Committee meets at noon, and exhibits are open to the inspection of members and the public from one to 4 p.m.

Our American contemporary, *Horticulture*, under the heading, California Notes, states that "the MacRorie-Maclaren Co. shipped 1400 *Phænopsis* blooms to San Francisco for the Christmas trade." Their origin is not stated. At a meeting of the Pacific Coast Horticultural Society held on January 2nd, "the exhibit of the evening was one of *Oncidium splendidum*, brought by the MacRorie-MacLaren Co., which was rated at 99 points."

We also learn that the Massachusetts Horticultural Society at its first meeting of the year awarded to E. B. Dane a silver medal for a beautiful specimen *Cattleya Trianæ alba*, and to Donald MacKenzie, gardener to Mr. Dane a cultural certificate for a plant of *Chysis aurea* bearing eight flowers. *Cymbidium Gottianum* (*eburneum* × *insigne*) from the same exhibitor was much admired. On the exhibition table were some lovely Orchid groups. F. J. Dolansky was represented by a large group of *Cattleya Trianæ*, including the white form. Col. Chas. Pfaff (gr. George Melvin) staged a superb specimen of *Lælia anceps* bearing 22 spikes of flowers.

At a meeting of the North Shore Horticultural Society, Mass., a Certificate of Merit was awarded to Ernest Townsend for a very fine plant of *Cypripedium insigne* in a 10-inch pot.

The New Jersey Floricultural Society have adopted for the eight monthly competitions of the coming year a set of six classes, to be adjudicated according to a scale of points. Class 1 is for the best Orchid plant in flower, and there are three prizes, of seven, five, and two dollars, and the winner of the highest number of points at the series of eight meetings to receive the prizes.

Under the heading of "Pleasing Floral Arrangements" the issue for December 12th illustrates what is called "A Quaint Dinner Favor of *Oncidiums*," from a photograph sent by Max Schilling, of New York. It represents a few short sprays of *Oncidium varicosum* in an earthenware shoe.

MR. PANTIA RALLI.—We have much pleasure in announcing that Mr. Pantia Ralli, Ashted Park, Surrey, has been elected a member of the R.H.S. Orchid Committee for the coming year.

R.H.S. SCIENTIFIC COMMITTEE.—The following notes on Orchids exhibited at the meetings of the Committee are taken from the Official Report (continued from vol. xxii. page 375):—

January 5th, 1915:—

EFFECT OF LIGHT ON ORCHIDS.—Mr. Gurney Fowler sent a number of young Orchid plants to draw attention to the short, stout, and sturdy new pseudobulbs formed since the plants were removed to their new quarters at Pembury, Kent, and away from the smoke area in which they were grown heretofore. Sir Edward im Thurn said the appearance of the plants reminded him of that shown by *Cattleya superba* when growing wild on the outer branches of trees where much light gained access to it.

Mr. Fowler also sent a plant of *Cattleya Luegæ* bearing flowers on both an old and a new growth; the flowers on the former opened about three days before those on the latter.

January 19th, 1915:—

ODONTOGLOSSUM HORSMANII.—Mr. R. A. Rolfe exhibited a flower of an *Odontoglossum* that flowered among some imported *O. Pescatorei* with Mr. W. Bazeley, Twyford, Berks. He referred it to *O. Horsmanii*, Rchb. f., originally described as a natural hybrid between *O. Pescatorei* and *O. luteopurpureum*, but suggested that *O. sceptum* (not *luteopurpureum*) was the second parent, as it has the rounder shape and broader segments of the latter, as was also the case with the earlier form. The flower was cream white, with a group of red-purple spots on each segment, while the lip was yellow, with a red blotch in front of the *sceptum*-like crest.

CYPRIPEDIUM NIVEUM × C. INSIGNE SANDERÆ (*C. Boltonii*).—Mr. Rolfe

also exhibited a flower of a *Cypripedium* from Mr. W. Bolton, of Wilderspool, from one of several plants raised from *C. × Boltonii*, stated to be crossed with another form. All alike had albino flowers, with a few minute purple spots on the standard. *C. × Boltonii* itself provides a good example of a dominant white.



ORCHID PORTRAITS.



- A**ÆRIDES VIRENS.—*Orch. World*, v. p. 92, fig.
 BRASSOCATTLEYA CLIFTONII ALBENS.—*Gard. Mag.*, 1915, p. 45, fig.
 CÆLOGYNE VEITCHII.—*Orch. World*, v. pp. 80, 81, fig.
 CYMBIDIUM ALEXANDERI ALBENS.—*Gard. Chron.*, 1915, i. p. 26, fig. 6.
 CYMBIDIUM CONINGSBYANUM BROCKHURST VAR.—*Gard. Mag.*, 1915, p. 30, fig.
 CYPRIPIEDUM ARTHURIANUM LANGLEY VAR.—*Gard. Chron.*, 1915, i. p. 23, fig. 5.
 CYPRIPIEDUM GRAND DUKE NICHOLAS.—*Gard. Mag.*, 1915, p. 19, fig.
 DENDROBIUM PRIMULINUM.—*Journ. Hort.*, 1915, i. p. 2, fig.
 EPIDENDRUM ELEGANTULUM.—*Orch. World*, v. p. 84, fig.
 EPIDENDRUM ENDRESII.—*Orch. World*, v. p. 84, fig.
 EPIDENDRUM WALLISHII.—*Orch. World*, v. pp. 82, 83, fig.
 ODONTIODA LATONA.—*Gard. Chron.*, 1915, i. pp. 47, 48, fig. 15.
 ODONTOGLOSSUM MIRABEAU VAR. MASTIFF.—*Orch. World*, v. p. 75, fig.
 ODONTOGLOSSUM ROSSII IMMACULATUM.—*Journ. Hort.*, 1915, i. p. 42, fig.
 ODONTOGLOSSUM ROSSII ROSEFIELDIENSE.—*Journ. Hort.*, 1915, i. p. 43, fig.
 ONCIDIUM SPLENDIDUM.—*Orch. World*, v. p. 89, fig.



ANSWERS TO CORRESPONDENTS.



[Orchids are named and questions answered here as far as possible. Correspondents are requested to give the native country or parentage of plants sent. An ADDRESSED postcard must be sent if a reply by post is desired (abroad, reply postcards should be used). Subjects of special interest will be dealt with in the body of the work]

J B.—Please say whether the plant appeared in an importation or was raised artificially. It is not a form of *Odontoglossum Wilckeanum*.

G.H.S.—We believe the plant is a form of *Cymbidium cyperifolium*, but should like to see it again when better developed.

Received with thanks.—E.C., J.T.B., E.F.C., J.B.

Photographs received with thanks.—J.T.B.

Ante-dated.—The event has since taken place. An intelligent anticipation of an event that is likely to happen is a quite suitable phrase.

Catalogue received.—Messrs. Ryder & Sons, St. Albans, Seed Catalogue for 1915. The following may interest our readers: "Orchids, greenhouse perennial, height 1 foot, 25 seeds, many grand kinds, id.



The Orchid Review

VOL. XXIII.

MARCH, 1915.

No. 267.



ORCHID CULTURE AND EVOLUTION.



A PAPER entitled "The Development of Orchid Cultivation and its bearing upon Evolutionary Theories," by J. Constantin, appears in the Smithsonian Report for 1913 (pp. 345-358). The author remarks: "When crowds throng our horticultural exhibitions they are struck chiefly by the brilliant splendour of colour, the rich variety of forms, and the strange transformations produced in the vegetable kingdom by the art of the plant breeder; but they are often incapable of appreciating the true importance of all the wonders displayed before their gaze.

"What at once strikes anyone who examines the Orchids is the bizarre aspect of these plants—their slender forms, their thick, fleshy leaves, their aërial roots, their bulbous bases, all contrasting with the incomparable brilliance of the corollas. Everyone still feels something of the sensations, so well described by de Puydt, which were experienced by visitors to the Orchid houses long ago when these plants were beginning to be grown in numbers in Europe. 'You would enter the house full of Orchids with eager curiosity, as though it were some shrine where a tangible mystery was to be unfolded. The method of growth without soil, the aërial roots, the heavy atmosphere, the abnormal leaves, the strange aspect, would grip you all at once, and if blossoms were open with their peculiar forms, fleshy petals, sombre colours, and penetrating perfumes, you stood overwhelmed at the display and at the patience of the gardener.'

"What used to cause so much astonishment at the method of growth of Orchids resulted from a peculiarity of these plants which was then little understood, namely, that they are children of the air, or, in other words, 'epiphytes'—in short, the curious plants which Linnæus included in his genus *Epidendrum* to indicate that they had the common characteristic of growing upon trees. The author then notes how the Portuguese missionary, Loureiro, was strongly impressed by the habit of the growth of *Aërides odoratum*, which lived 'freely suspended in the air with neither food nor any base, either terrestrial or aquatic,' and, again, how Loddiges

declared that he had received *Oncidium bifolium* from a traveller returning from Montevideo, who had seen the plant flower, deprived of all soil, in the cabin he occupied on shipboard.

“Horticulturists tried from the first to reproduce artificially the conditions for aërial life, and it was thus that the celebrated Joseph Banks, in 1817, described the first attempts at culture in frames suspended from the roof of the greenhouse. Treatment of Orchids in pots with some sort of earth, which had been the method employed in the first attempts at cultivation at the end of the eighteenth century, was altogether barbarous, and inevitably resulted in the death of the delicate aërial. No one would think of making a fish live out of water. How could one expect that a species accustomed to a free epiphytic life would accommodate itself without injury to a low terrestrial existence?”

The paper then goes on to describe the cultural experiments, the vast introductions, and the great extension of Orchid culture, until in course of time the secret of raising them from seed caused a revolution in the industry. In 1822 the French botanist, Du Petit Thouars, remarked that it was believed for a long time that the seeds were incapable of the first act of vegetation, and only a short time before had their germination been observed in England by Dr. Salisbury.

As the nineteenth century progressed other examples of germination were recorded, and this led to another development, namely hybridisation, a work which had been carried on with great success among other garden plants. Up to the middle of the nineteenth century growers had not undertaken the task with Orchids, because of their inability to secure germination, and horticultural activity, rendered fruitless, had to exercise itself in some other direction to satisfy the admirers of the beautiful plants. It was thus that importations became so extensive. Nowhere else in the vegetable kingdom is there another province where the exertion has been so prodigious from this point of view.

The extension of the method of hybridisation to Orchids, commenced by Dominy in the Veitchian Establishment, inaugurated a new era, which has practically revolutionised Orchid culture. After giving details of the progress of hybridisation, the author remarks that despite the wonderful results cited those who obtained them were, until the last few years, ignorant of the true reason for the cultural technique they employed, and there were numerous inexplicable failures. The riddle was solved by the discovery that the germination of Orchid seeds was due to the action of certain parasitic fungi, whose presence in the roots had long been known. The significance of the phenomenon was discovered by M. Noel Bernard. After having worked with the bird's nest *Neottia*, and tried vainly to germinate the microscopic seeds, he had the good fortune to find a capsule

of this plant which was bent towards the ground and had dehisced upon the soil. Its seeds had germinated. Upon studying their structure he saw that they were infected by a fungus, in all probability the same as that upon the roots of the parent plant. This happy observation shed a ray of light; it explained all the failures in cultivation experienced by growers, as well as the reason for their success when they placed the seeds about the base of the mother plant.

Some interesting applications of the discovery to cultural methods are then described, and objections answered, and it is remarked: "It could not be anticipated that the biology of these plants was so extraordinary. They are in short, plants that are normally diseased, which not only accommodate themselves to their parasites but are unable to exist without them."

At present three species of these fungi have been described, one which inhabits the roots of *Cypripediums*, *Cattleyas*, and *Lælias*; another which is associated with species of *Phalænopsis* and *Vanda*, and a third restricted to *Odontoglossums*. "These fungi, ordinarily parasites, can be cultivated away from their usual host upon an artificial medium. It is then found that their threads have the property of rolling upon themselves into a ball, so that under artificial conditions they conduct themselves in the same manner as in the cells of the host which they have invaded in the usual fashion."

Any bearing the facts recorded may have upon evolutionary theory is limited to the concluding paragraph, where it is remarked: "At present too much attention is given to the study of hybrids. The Mendelian laws, so long forgotten, and recently brought to light by the work of De Vries, Tschermak, Correns, and Bateson, would lead one to believe that the key to the riddle of evolution had been found. These laws, it must be stated, are applicable to very simple cases, such as that of two varieties which differ from each other by one or a small number of characters. The characters of their offspring are then subject to indisputable mathematical laws. They do not seem applicable, at least at the present moment, to cases of two parent species of an offspring, differing from each other by numerous characters. If even these complex cases could be cleared up and reconciled with Mendelian principles, the result would be a theory that evolution takes place only in the ovule. Can we admit that an exterior influence can never cause the appearance of new characters? Upon this there can be no division of opinion. All that has been set forth above with regard to the Orchids plead a contrary case, which is in accordance with the theory set forth by Lamarck, the famous disciple of Buffon."

It will thus appear that M. Constantin favours the view so ably defended by Prof. Dendy (see pp. 290-295 of our last volume).



NEW ORCHIDS.



ANOTHER Decade of New Orchids has appeared in the *Kew Bulletin*, of which the following six are in cultivation:—

CIRRHOPE TALUM FORMOSANUM, Rolfe.—A Formosan species, which was sent to Kew by Mr. W. R. Price two years ago, and has flowered on two or three occasions. The flowers are straw yellow, with a deep yellow lip, and a suffusion of pink in the petals. It is allied to the Himalayan *C. elatum*, Hook. f.—*Kew Bulletin*, 1914, p. 372.

IONE FLAVESCENS, Rolfe.—A dwarf Burmese species, which flowered in the Royal Botanic Garden, Glasnevin, in September, 1914. It was collected on Mt. Victoria by Mrs. Wheeler Cuffe, and is allied to *I. Andersonii*, King & Pantl., and, like it, has two clavate stripes on either side of the broad column, each with a distinct squamiform gland. The sepals are pale yellow, and the petals and lip deep yellow.—*l.c.*, p. 373.

CÆLOGYNE SIAMENSIS, Rolfe.—Sent from Bangkok, Siam, by Mr. C. Roebelen, and flowered at Kew in October, 1914. It is near *C. lentiginosa*, Lindl., and has pale green sepals and petals, and the lip light yellow, with brown markings.—*l.c.*, p. 373.

ARUNDINA SUBSESSILIS, Rolfe.—Introduced from Upper Burma by Messrs. Sander & Sons, and flowered in the collection of H. J. Elwes, Esq., Colesborne, Gloucestershire, in September, 1914. The flowers are nearly sessile at the apex of the shoots, and the flowers whitish with lilac tips to the sepals and petals, a broad violet-purple zone round the limb of the lip, and the keels yellow.—*l.c.*, p. 374.

POLYSTACHYA HISLOPII, Rolfe.—Sent to Kew by Mr. A. Hislop, Makoni Kop, Rusapi, S. Rhodesia, and flowered in the collection in September, 1914. The sepals and petals are light emerald green, and the lip white with a rose-coloured margin, a few similar radiating lines on the side lobes, and a few purple spots at the base of the front lobe. Except in the details of the lip it is much like *P. Lawrenceana*, Kränzl., from the Upper Zambesi.—*l.c.*, p. 375.

ZYGOPETALUM PRAINIANUM, Rolfe.—Imported from Peru by Messrs. Sander & Sons, through their collector, L. Forget, and flowered at St. Albans in September, 1914, afterwards passing into the Kew collection. The sepals and petals are dusky brown, with obscure green stripes on the petals, and the lip white, lined with light rose purple on the crest. It is allied closely to the Roraima *Z. Burkei*, Rchb. f.—*l.c.*, p. 376.

The other four novelties are South African *Eulophias* described from dried specimens.



ORCHID CULTURE IN BELGIUM.



THIS was the subject of a paper read at the Kew Gardeners' Mutual Improvement Society on January 18th, by Mr. H. P. Chollet, an assistant in the Orchid houses at Kew, and son of M. Chollet, foreman of Messrs. Sander & Sons' Bruges Establishment.

The essayist prefaced his remarks with a few words about M. J. J. Linden, a name famous in the annals of horticulture, and one of the pioneers of Orchid cultivation in Belgium. Born in 1817, at Luxembourg, Linden became a distinguished scholar and linguist, well versed in Geography, Botany, and Geology, and when the Belgian Government decided to send a scientific expedition to Brazil they chose him as its chief. The expedition was successful, and returned to Belgium in 1837 with a splendid collection of living botanical zoological specimens. Gratified with the results of the first trip, the Belgian Government decided to send Linden out again, with the task of exploring Mexico, Guatemala, and the Greater Antilles. Linden and his party were away for four years and four months, returning in 1847. Apart from the extensive collection of dried botanical specimens, which were distributed amongst the different European Herbaria, he also introduced to Europe a considerable number of living Orchids, some of them for the first time.

Linden was still possessed with the travel spirit, and he sailed again the same year, this time to Colombia. After revisiting the Sierra Nevada and Cuba he returned home, with his health impaired by ten years of hardships as a scientific explorer. The Orchids collected during this expedition were described by Lindley in a special publication, entitled "*Orchidaceæ Lindenianæ*," and included novelties in *Masdevallia*, *Odontoglossum*, *Oncidiums* of the higher Cordilleras, *Uropedium Lindenii*, *Anguloas*, and others, which we cultivate to-day.

On his return Linden established himself in business as a nurseryman at Brussels, the establishment being largely devoted to the introduction of exotic plants which he had met with during his travels. A few years later he was appointed Director of the Brussels Zoological Gardens, a post which he filled for ten years. For many years he sent collectors to Colombia, Peru, Brazil, Guatemala, Assam, and other localities, and soon took a leading position in supplying European horticulturists with new plants, including Orchids, of which a very large number were introduced by him for the first time. He died in 1898, in his 81st year.

In giving a brief outline of Orchid culture in Belgium, it was pointed out that the last quarter of a century had witnessed a great development,

and was now quite a large industry. There were several reasons for this. First, the geographical position was good, Belgium being surrounded by the great nations, Germany, France, England, and Holland, while Antwerp, the third greatest port in the world, has shipping connections with America and many other countries, and freight rates are comparatively low. Secondly, fuel was cheap, there being coal mines close at hand, and the cost of fuel is an important factor in a large nursery consisting mainly of glass. Thirdly, the climatic conditions were favourable, the temperature being temperate and the atmosphere moist, and, lastly, labour was abundant.

The chief establishments are near Ghent, Brussels, and Bruges, and it made one feel sad and to think of the beautiful nurseries in this garden of Europe which were now, many of them, devastated by the war.

HOUSES.—Belgian Orchid houses were generally small, and the foundations level with the surrounding surface. The frame work consists generally of wood with brick walls, and the houses were not built close together, as a little space was left for aeration. They were span-roof structures, facing West and East, varying in size, with a central path and two stages, which are open lattice-work so as to permit a free circulation of air. Some houses were built with side sashes, and others with the roof resting directly on the brickwork, while other large span-roof houses had two paths and a central stage, which might be flat or have shelves to provide a larger staging area. Along the east and north sides of the nursery would be a big wall, against which are built half-span roof houses, used for certain species, especially hanging varieties. The lecturer had seen many establishments with one or two houses, facing north with ventilators at the top and sides, where Cool Orchids grew well.

HEATING was done by means of hot-water pipes, with the boiler outside, these being of the saddle-back type, though a few of the sectional kinds are now in use. Some nurseries economise fire-heat in winter by means of thick straw mats, a practice favourable to the plants, but most nurseries rely upon fire heat alone, and this, of course, requires more moisture. There was nothing to mention about the installation of the heating apparatus, but the fuel used was coke and briquette.

VENTILATION followed the usual system, the lower ventilators being placed on the ground level, and the upper at the highest part of the roof, care being taken to maintain an even temperature and to avoid draughts.

MOISTURE.—In Belgium much attention was paid to the question of atmospheric moisture, due regard being paid to the nature of the plants and the period of vegetative activity, plants with pseudobulbs or very fleshy leaves, not requiring the same amount of moisture as those with membranous leaves. The temperature and intensity of the light had also to be taken

into consideration. Epiphytal Orchids rely mainly upon atmospheric moisture for their requirements.

SHADING.—There were various systems of shading in Belgium. In a few establishments reed blinds were used, while others employed a stipple of lime sprayed on the glass. Mexican *Lælias* thrive exceeding well under the latter conditions, and such shading answered admirably for the ends of houses. The process most commonly used in Belgium was the roof shading of canvas or articulated lattices, with an interval between the glass and the shading of 20 centimetres. Shading varied according to the species, and it was essential to preserve a proper balance between the amount of light and shade, with the object of procuring vigorous, healthy, and floriferous specimens, which is the Orchidist's chief aim.

WATERING.—The operation of watering was one of the most important factors in Orchid culture, as different species required various treatment in this respect. Rain water should be provided, and the early morning, before the sun becomes hot, was the best time. Care must be exercised in watering plants, those in active growth requiring plenty, but when at rest only sufficient to prevent them from shrivelling. In Belgium many species are grown in pure osmunda fibre in small pots. They dry quickly, which keeps the plants in good health during the growing and resting periods. Epiphytal Orchids in their natural habitat receive moisture from the dew and occasional showers. When the sun comes out evaporation takes place, and no stagnant water ever remains in the vicinity of the plant. This is the essential reason why we use a quick drying compost. Plants growing in moist places, as under trees, of course require more moisture than epiphytes. Baskets are watered by half immersing them for a few moments in the water tank.

POTTING.—The potting materials used in Belgium vary with different firms, which seldom follow the same practice. But I have noticed that each firm usually cultivates some particular species very well. The materials employed are as follows: Osmunda fibre, imported from America. It is cut up, pulled, and sieved, and makes a firm, porous compost, in which the roots grow freely, and it permits a free drainage when watering. Polypodium fibre is also used, but not so commonly as osmunda. Leaf mould is also used for epiphytal species. A compost which contains leaf mould should have a layer of moss placed over the crocks when potting, to prevent it from choking the drainage. English loam is used for terrestrial species. Lastly, sphagnum moss, which is imported from East Belgium and France. This is used in addition to other substances, and the proportion of sphagnum depends upon the species. Drainage materials are crocks, bark, sand, and charcoal. These materials are used according to the nature of the species, true epiphytes requiring a very porous compost,

and terrestrial subjects a more substantial one, while some are semi-terrestrial, in fact there is a gradual transition between the two classes. Pots, pans, or baskets are used according to the character of the plant.

(To be concluded).



ORCHIDS FOR CUT FLOWERS.



A PORTRAIT of Mr. Frank J. Dolansky, a noted Massachusetts florist, appears in a recent issue of *Horticulture* (p. 241), with an account of the Orchids grown by him for cut blooms for market. Orchids are extensively grown, the stock amounting to about 35,000 plants.

The houses are built on the southern side of a hill, on a moist gravelly soil which gives off sufficient moisture to keep the internal air in the best possible condition. What with this southern exposure, glass close to the plants, and heavy humidity, conditions are ideal for producing the large and finely-coloured Cattleyas for which Mr. Dolansky is noted.

Hundreds of plants are imported every spring and summer, mostly Cattleyas, which Mr. Dolansky grows extensively. His favourite variety is Cattleya Trianæ, which, in his opinion, is the best commercial Orchid grown. It is a rather slow producer of blooms, but it comes out in many and exquisite variations, and blooms in mid-winter when the demand is greatest. *C. labiata* blooms more freely, but comes too early in the winter, in fact in the fall, to command the prices of mid-winter. We noted a fine plant of the valuable Cattleya Trianæ alba. There was also a plant of *C. Trianæ* which produces freak blossoms, coming out with double parts, double lips, two pairs of petals, wings, &c.

Some work in hybridising is being done, but it has not been carried far enough as yet to show any definite results. A germinating case is noted in which were Orchid seeds germinating on Turkish towelling covering the damp moss underneath. Mr. Dolansky stated that this method was cleaner and safer than starting seed on the moss surface itself, as fungi was liable to injure the young seedlings. A plant of Cattleya speciosissima was shown which had three blooms to every stem.

Mr. Dolansky claims a rosy future for the Orchid, which he finds is becoming more and more popular. Flower buyers are getting educated to their use, realising that they are long lasting, and that just as much show can be secured from one or two Cattleyas as from 100 violets. And for personal adornment the light spray of Orchids and lily of the valley worn on the arm or shoulder is much more adaptable than the heavy bouquet of violets worn at the waist. Mr. Dolansky's stock consists largely of Orchids and Gardenias, and the business has been built up since 1904.

 ODONTOGLOSSUM CRISPUM VAR. THE ANGEL.

INNUMERABLE are the varieties — so-called — of *Odontoglossum crispum* that have been figured, but we add one more to the series, namely *O. c.* The Angel, which flowered in the collection of De Barri Crawshay, Esq., Rosefield, Sevenoaks. The photograph here reproduced was taken in October, 1905, and sent later by Mr. Crawshay. It is a flower of excellent shape, as to which the figure may be left to speak for itself, and Mr. Crawshay records the colour as white, with the exception of a little rose flush on the backs of the sepals and brown on the column,



Fig. 6. *ODONTOGLOSSUM CRISPUM* VAR. THE ANGEL.

while the spotting on the segments is brown. We cannot say whether the locality of the variety is known, but it is not mentioned in a paper on the geography of these varieties written by Mr. Crawshay soon afterwards (see *O.R.*, xiv. pp. 193-196). We are inclined to refer it to the Chiquinquira type of *crispum*, for we have seen forms approaching it from this region, and we should place it in the chain of varieties which connects *O. Fascinator* with *O. crispum*, a series which can be traced back through

O. Adrianæ, more or less continuously, to *O. Hunnewellianum*, doubtless the result of crossing by insect agency through innumerable generations. Artificial hybridisation will probably throw more light on this interesting question in the future. Much has already been done, and a few well directed experiments might solve some of the points that still remain doubtful.



CALENDAR OF OPERATIONS FOR FEBRUARY.



By W. H. WHITE, for many years Orchid Grower to the
late Sir Trevor Lawrence, Bart., K.C.V.O.

SHADING.—The season of the year has now arrived when it is necessary to have the blinds or shadings used on the houses fixed in their places at once, ready for use at any moment, for the sun is now getting too powerful for some Orchids, especially where the houses are so situated that it shines directly on the plants. In the coolest division, particularly span-roofed structures running north and south, the temperature, under the sun's influence, quickly rises above what is necessary to grow the plants to the highest perfection. This will certainly be the case on clear, bright, cold days, when the external air, being, perhaps, several degrees below 40°, is unsuitable to be admitted with sufficient freedom to keep down the temperature. At such times the blinds should be used. If the external air is congenial, that is, above 50°, and moist, give abundance of air and shade less. The blinds on the East Indian, *Cattleya*, and Intermediate houses will only have to be let down for an hour or so over those roofs which fully face the sun. The blinds for the Cool house and the two last-named divisions should, when down, be five or six inches above the glass, the benefit of which to Orchid-growing is very great, but those of the East Indian house may be rolled down on the glass, as a maximum of sun-heat is necessary for the majority of the plants in this division. The Mexican house should be very thinly shaded, but the inmates will need no protection until the sun gets really strong, as the plants delight in an abundance of sun-heat and light at all times.

Where new Orchid houses have been erected it is advisable, whenever the sun is very bright, to thoroughly examine the new glass for flaws, or if not noticed the leaves of some valuable plants may get injured. These defects, when noted, should at once be made good by substituting good clear glass for the bad, but if this alteration cannot be done at once, daub the offending pane, or the flaws only, with white paint.

PREPARING COMPOST.—For the next few months the work of great importance will be repotting many of the plants and young seedlings, or renewing the surface of those which do not need the former operation.

Undoubtedly a great deal of the grower's time will be occupied at this season in such necessary work as watering, damping down, shading, &c., but it is advisable to spare as much as possible in preparing a good store of the various substances used for potting, so that later on there will be no vexatious postponements of the work. Sphagnum moss should be carefully picked clear from leaves and rubbish, and afterwards washed thoroughly in luke-warm water, so that slugs and their eggs may be got rid of. This, of course, takes considerable time to do, but certainly not more than the constant hunting among the plants for these pests that are rarely ever caught until some valuable flower spikes have been destroyed. Plenty of osmunda fibre and A 1 fibre should be cleaned, cut up, and freed from as much dust as possible. If very dry, damp it lightly with a fine sprayer, and stow it away ready for use.

CALANTHES.—The deciduous *Calanthes*, *Thunias*, *Cyrtopodiums*, &c., will soon be ready for repotting, and the principal soil needed for them is good fibrous yellow loam, which should be got in, and, if possible, laid in a suitable place to dry, not too close to the hot-water pipes or boilers, but somewhere where it can gradually get just warm before being made use of, otherwise, if employed in a cold, damp state, some of the growths just starting may receive a check. When sufficiently warm the loam should be carefully picked over, selecting only the best fibrous pieces, and doing away with all the finest particles. Fresh cow-dung, which forms an excellent manure for *Calanthes*, should be collected and exposed to the sun till it is fairly dry, when it may be rubbed through a fine sieve and spread out thinly, keeping it turned over occasionally until quite dry.

EAST INDIAN HOUSE.—Plants of *Vanda teres* and *V. Hookeriana*, with the hybrids *Miss Joaquim* and *Marguerite Maron*, will soon commence to grow afresh. Those plants that for several months past have been resting in a cooler division under comparatively dry conditions should now be removed to this house. It is advisable to arrange them at one end of the house, where they may receive uninterrupted sunlight, and only shading them during the hottest days of summer, or whenever scorching of the top-most leaves is feared. From the present time syringe the plants overhead at least once a day, and in bright weather two or three times, and keep their surroundings moist at all times. If the growths are strong enough they should, under these conditions, produce large spikes and highly-coloured flowers.

IPSEA SPECIOSA.—While writing about growing these terete-leaved *Vandas* in comparatively full sunshine, I am reminded of the rare *Ipsa speciosa*, a terrestrial Orchid which is a native of Ceylon, and possesses tuberous roots. It is a plant easy to grow, and is well worthy of cultivation. The flower spikes are about one foot long, and each bears several fairly

large bright yellow fragrant flowers. The plant succeeds well under the same atmospheric conditions as that afforded to the *Vandas*; it will even stand the strongest sunshine at any time provided there is a good circulation of air in the house. It requires an abundance of water at the roots from the time growth commences till the flowers fade. During the resting season the plant should still be exposed where it can obtain all the sunlight possible, and the compost kept relatively dry. Repotting may be undertaken when growth starts afresh, employing a mixture of good fibrous loam, sandy peat, and leaf soil with plenty of small crocks intermixed.

DENDROBIUMS.—Many *Dendrobiums* in the same house will now be responding to the influence of increased daylight and warmer weather, and flower buds, which a few weeks ago seemed to be making but little progress, are now in full beauty, whilst new roots and top growth show that the resting season is over. Among plants now in flower the species and numerous hybrids are making a fine show, and where a fairly representative collection of these plants are grown, there will, if the plants are kept in a comparatively dry and well ventilated compartment, be many in bloom for a long time to come. Such species as *D. Bensoniæ*, *nodatum*, *Parishii*, *rhodopterygium*, *pulchellum*, &c., should still be kept on the dry side till their flower buds appear. Plants of *D. cretaceum*, *crepidatum*, *primulinum*, *Pierardii*, *lituiflorum*, *cucullatum*, and many others whose flower spikes are prominent, will now require more warmth than their resting quarters afford, and a more generous treatment. The racemose section will soon be pushing out their flower buds, and in order to properly develop such the plants must receive a trifle more water at the root, and the warmer atmosphere of the *Cattleya* house will greatly assist them. This section, which is evergreen, contains such fine Orchids as *D. thrysiflorum*, *densiflorum*, *Schröderi*, *Griffithianum*, *fimbriatum*, *Farmeri*, *suavissimum*, *chrysotonum*, &c.

THUNIAS.—Towards the end of this month it will be necessary to repot the *Thunias*, the principle varieties being *T. Marshallii*, *T. Bensoniæ*, *T. candidissima*, the rare *T. Marshallii alba*, and the pretty hybrids *T. Veitchii* and *T. Brymeriana*. The plants should be shaken out of the old compost, and the dead roots shortened to within an inch or two of the base. The general and most convenient way where space is limited is to plant seven or eight of the strongest stems together in an eight or nine inch pot, which should be almost half-filled with crocks, then a layer of turfy loam over these, the rest of the space being filled with the compost, which should consist of good fibrous loam, *osmunda* fibre, and sphagnum moss cut up moderately fine, and in equal proportions, adding a sufficient supply of coarse silver sand and broken crocks to ensure porosity. The advantage of having a layer of good turfy loam below the compost is that the new roots

find their way into it just before the flower spikes appear, and derive much benefit from it, while it affords fresh vigour to the new growths. When repotting, the base of the young growths, which will be several inches high, should be level with the surface of the compost, and this should be at least half an inch below the rim of the pot, so as to make watering easy. Each stem should have a strong neat stake to hold it firm.

Thunias produce the flower racemes from the apex of the new growth about the middle of May, and well-flowered specimens make very handsome plants, and are extremely useful for decorative purposes generally, consequently they deserve every attention during their short season of growth. To be successful in blooming these plants they should be firmly potted, and then placed in the very lightest position available in the East Indian house, with the tips of the old stems nearly touching the roof glass. The young growths revel in moderate sunshine, but when during the middle hours of the day the sun's rays become very powerful they should be thinly shaded. For the next few weeks after repotting and until the growths have well started, and are making plenty of new roots, water should be sparingly afforded, but afterwards it may be freely supplied, and when the new shoots have become well established an occasional dose of weak liquid cow-manure will be an advantage.

ARUNDINAS.—The pretty *Arundina bambusæfolia* and *A. Philippii* are terrestrial Orchids, which may be similarly treated to Thunias.

AERIDES AND ALLIES.—*Aërides*, *Saccolabiums*, *Angræcums*, and *Rhynchostylis*, unfortunately, are not now so generally grown as they used to be. Some few of the species of these genera bloom in August and September, and one or two during the winter months, but the majority of them flower during the early summer, and when in bloom few Orchids are more handsome. One might enumerate such plants as *Aërides affine*, *A. Houlettianum*, *A. Lobbii*, *A. Larpentæ*, *A. odoratum*, *A. suavissimum*, *A. Fieldingii*, *A. Schröderæ*, *A. Lawrenceæ* and its variety *Sanderianum*, *Saccolabium giganteum*, *S. violaceum*, and the rare *S. Hendersonianum*, a charming little plant with bright rose-coloured flowers, *Rhynchostylis retusa*, *R. præmorsa*, *R. guttata*, the lovely blue *R. cœlestis*, *Angræcum sesquipedale*, with its large ivory-white flowers, also many smaller growing plants, as *A. fastuosum*, *A. citratum*, *A. hyaloides*, *A. Kotschyi*, &c. The majority of these epiphytal plants require the warm, moist atmosphere of the East Indian house, but a few varieties, as *Aërides crispum*, *A. Warneri*, and *A. Lindleyanum* prefer the atmosphere of the Cattleya or Intermediate house, while *A. japonicum*, *A. cylindricum*, and *A. Vandarum* should be grown cool the whole year round. The two last-named, having terete leaves, should be grown in the lightest position available.

At this season it is advisable to overhaul these plants and thoroughly clean them, especially if there be any scale insects on them. Some of the plants will naturally have lost a number of their lowermost leaves, and a part of the stem is bare, but if aërial roots are plentiful the stem may be shortened, so that when the plant is put into the new pot the leaves will be on a level with the rim. Whether the ordinary flower pot, shallow pans, or teakwood baskets are used, plenty of drainage is necessary. Broken crocks should be used for drainage, to three-fourths of their depth, then surface to the base of the leaves with freshly-gathered sphagnum moss, which should be pressed down with moderate firmness. After root disturbance the plants should for several weeks be rather heavily shaded. Remove all flower spikes that appear until each plant becomes well rooted; other spikes may come later. Plants that are well furnished with leaves need not be disturbed by repotting, unless larger pots have become necessary. Merely pick out the old compost and resurface with fresh sphagnum moss. Keep their surroundings fairly moist by light waterings with a fine sprayer, so as to encourage root action, and to keep the sphagnum on the surface in a fresh growing condition. Plants of the rare *Vanda Sanderiana* now pushing out fresh roots should have similar attention, but if the roots are found clinging to anything do not disturb them if it can be avoided, as if unduly disturbed the plant is not easy to bring round.

SPATHOGLOTTIS.—Immediately such plants as *S. aurea*, *S. Regnieri*, *S. Fortunei*, *S. Ericssonii*, *S. Kimballiana*, *S. Augustorum*, and *S. Colmanii* commence to grow they should be repotted in the same kind of compost as advised for the *Thunias*. When repotted place the plants in a light, moist position in this house, and afford copious root waterings till growth is completed. The same remarks apply also to *Microstylis bella*, *M. Scottii*, *M. macrochila*, and others.

INTERMEDIATE HOUSE.—In this house plants of *Miltonia vexillaria*, *M. Charlesworthii*, *M. Hyeana*, *M. Bleuana*, the rare *M. Warscewiczii*, and the distinct *M. Schroederiana* will now be in full growth, and in consequence will need plenty of water at the root. While in this condition it is advisable to examine the growths of *M. vexillaria* and its allies occasionally, as some of the young leaves now and then adhere to each other so firmly that it causes them to become crumpled. When this is observed liberate them with the handle of a budding knife, or a thin smooth piece of wood, which is better than loosening them with the fingers, there being less likelihood of the tender foliage getting injured. I have never found this to be a good season for repotting or dividing plants of *M. vexillaria*, but small plants that were divided early last autumn, or plants that were reduced to small-sized pots and have become pot-bound, may be carefully

turned out, without the least root disturbance, and repotted into larger-sized pots. Such varieties as *rubella*, *Leopoldii*, and *superba* will not be so forward in growth as the others, but they will need similar treatment. During the winter and early spring months the leaves of these *Miltonias* are very liable to become spotted at the tips, which, if the growths are weak and unsubstantial, indicates that too much heat and moisture are afforded. These plants should at all times have plenty of fresh air, and being now in full growth a light syringing on bright, sunny mornings from a fine sprayer, well up under the foliage, will greatly encourage growth, and assist in warding off insect pests. The now rare *M. Phalænopsis* will be passing through its flowering season, and after the flowers are over still keep the plant moderately moist at the root.

LÆLIA MONOPHYLLA.—A little gem among *Lælias* is the bright scarlet *L. monophylla*, a plant that has always been considered difficult to import and establish, but when it once becomes well rooted, and not allowed to over-flower itself, will keep in good health for a long time. If the plants require fresh material now is the best time to afford the same. Place them in small, well-drained pots, in a mixture of *Osmunda* and *AI* fibre. Cut the fibres up finely and pot each plant with moderate firmness, in such a way that when the plants are watered water will pass as freely as through a sieve. A good plan is to elevate these small plants among those of *Miltonia vexillaria*, the plants thus obtaining the same cultural conditions as advised for these species.

VANDA TRICOLOR.—Plants of *V. tricolor* and *V. suavis* will now be growing freely, and should receive a little extra water at the roots, their flower spikes being just discernible. Every precaution should be taken that the plants are not placed in a position whereby they will receive drip from the roof, which is likely to accumulate at the base of the leaves and cause the spikes to decay. These tall growing plants require to be carefully protected from strong sunshine at all times, especially those that were repotted at the beginning of winter, as they are liable to lose a number of their lower leaves if exposed for any length of time to the direct rays of the sun, particularly during the early spring months.

TEMPERATURES.—Maintain the following temperatures: Cool house, 50° to 60°; *Cattleya* and Intermediate houses, 60° to 70°; East Indian house, 65° to 75°. The lowest temperatures are for night and the highest for noon. The Mexican house should be about 55° at night, rising in the day by sun-heat to 80° with plenty of air. The Cool houses must have plenty of air at all times, and the next two divisions a moderate supply both by night and day. Give a little air to the East Indian house whenever possible. If on mild nights the lower ventilators are left partially open no harm will accrue.

NEOMOOREA IRRORATA.

AN inflorescence of the striking *Neomoorea irrorata* was included in the group staged by Messrs. Charlesworth & Co. at the R.H.S. meeting held on February 16th last, and the circumstance reminds us that the habitat of the plant, so long unknown, can at last be recorded. There is a fine unnamed specimen in the Lehmann Herbarium, which was collected by Consul Lehmann in the State of Antioquia in December, 1884. It is localised as Rio Nuz, between Pavas and Alto grande, at 1000 to 1500 mètres elevation (No. 4006 of the collection). In Lehmann's Catalogue the locality is given as Woods at San Julian, between the Alto grande and Rio Nus, at 500 to 600 mètres. The discrepancy may be more apparent than real, for Consul Lehmann had a habit of including gatherings from different localities under the same number if he thought them identical, but if correct it indicates a considerable altitudinal range. This was over five years before the plant appeared in cultivation, but there seems to be no connection between the two events. In April, 1890, a plant which had been purchased at a sale some years previously, under the name of *Lycaste gigantea*, flowered in the Royal Botanic Garden, Glasnevin, and, proving quite distinct, was described as a new genus, under the name of *Moorea irrorata* (Rolfe in *Gard. Chron.*, 1890, ii. p. 7), being dedicated to Mr. F. W. Moore, the able Keeper of the Royal Botanic Garden, Glasnevin. There was no other clue to its origin, though Messrs. F. Sander & Co. were thought to have been the importers. Somewhat later a leaf and inflorescence were found in a collection of dried plants presented to Kew by Messrs. Charlesworth, Shuttleworth & Co., but this also was unlocalised, and the origin of another plant, subsequently recognised in the Brussels Botanic Garden by Mr. F. W. Moore, was also unknown. The Glasnevin plant again flowered in March, 1892, and an inflorescence which received a First-class Certificate from the R.H.S. was figured (*Gard. Chron.*, 1892, i. p. 489, fig. 73). It was also figured at t. 7262 of the *Botanical Magazine*. The Glasnevin plant was divided, and part sent to Kew, where it flowered in April, 1901. It is this plant, reduced to about a third natural size, which is reproduced in our present figure. The name was changed to *Neomoorea* (*O.R.*, xii. p. 30), on the discovery that *Moorea* had been previously applied to the well-known Pampas grass. The genus is allied to *Houlletia*, but differs in various structural details. The lip, owing to the narrow front lobe and the expanded side lobes veined with blackish purple, bears a striking resemblance to a butterfly attached by its head. The sepals and petals have an expanse of about two inches, and are of a curious shade of orange



Fig. 7. NEOMOOREA IRRORATA.

brown, with a nearly white base. It is a striking plant, and when out of bloom bears a considerable resemblance to a giant Lycaste. R.A.R.

SOCIETIES.

ROYAL HORTICULTURAL.

A MEETING was held at the Royal Horticultural Hall, Vincent Square, Westminster, on February 2nd, when there was a good display of Orchids and a much increased attendance of visitors. Six medals were awarded to groups, and an Award of Merit to a beautiful albino of *Cattleya Trianæ*.

Orchid Committee present: J. Gurney Fowler, Esq. (in the Chair), Messrs. J. O'Brien (hon. sec.), De Barri Crawshay, W. Bolton, S. W. Flory, W. H. White, A. Dye, W. P. Bound, J. E. Shill, W. H. Hatcher, J. Cypher, W. Cobb, T. Armstrong, F. J. Hanbury, Pantia Ralli, Stuart Low, Gurney Wilson, J. Charlesworth, C. H. Curtis, R. A. Rolfe, and Sir Harry J. Veitch.

J. Gurney Fowler, Esq., Brackenhurst, Pembury (gr. Mr. Davis), exhibited *Odontioda* Joan Fowler's var., heavily marked with red on a yellow ground, *O. Vivid* (*C. Noëtzliana* × *O. illustrissimum*), bearing a panicle of about twenty bright crimson flowers, and *Sophrocattlælia Sylvia* Fowler's var.

Baron Bruno Schröder, The Dell, Englefield Green (gr. Mr. Shill), sent a fine spike of *Cymbidium Pauwelsii* Dell var., one of three borne by the plant, and the beautiful *Cattleya Trianæ* The Baroness, with nearly white flowers.

Pantia Ralli, Esq., Ashted Park, Surrey (gr. Mr. Farnes), sent *Odontoglossum amandens* Queen of Spain (*Wilckeanum* × *Rolfeæ*), a bright yellow flower with chocolate blotches.

R. Ashworth, Esq., Ashlands, Newchurch (gr. Mr. Gilden), sent *Odontoglossum Cervantesii decorum*, with a six-flowered spike.

Messrs. Armstrong & Brown, Tunbridge Wells, staged a very fine group, including many plants of *Cattleya Maggie-Raphael alba*, *Odontoglossum Royal-Purple*, several good *O. Thompsonianum*, and some blotched seedlings, *Brassocattleya Vesta*, B.-c. *Cliftoni albens*, *Maxillaria sanguinea*, several brightly-coloured *Odontiodas*, *Cypripedium Juno*, and various others (Silver Flora Medal).

Messrs. Charlesworth & Co., Haywards Heath, staged a choice group of well-grown plants, the centre consisting of a fine specimen of *Cymbidium insigne* bearing eight spikes, *Cattleya Trianæ* Admiral Beatty, a finely-shaped form of good colour, *C. Enid* var. *Firmin Lambeau* (*Mossia Reineckeana* × *Warscewiczii* Frau Melanie Beyrodt), a charming white flower with pink veining on the lip, *C. Clotho*, a good plant of the richly-

coloured and fragrant *Miltoniodes* Ajax, *Miltozia* Bleuana, *Brassocattleya* Joan, *Odontonia* Louise, some good *Cypripediums*, *Odontoglossum* *armainvillierense* *xanthotes*, bearing a fine panicle, *Odontioda* Latona, and others (Silver Flora Medal).

Messrs. J. Cypher & Sons, Cheltenham, staged a good group, consisting largely of *Cypripediums*, among which *C. Euryades* New Hall var., with twin dorsal sepal, and forms of *C. Actæus* were conspicuous, while *Angræcum* *superbum*, a few hybrid *Calanthes*, and some well-bloomed *Masdevallia* *Schroederiana* were also included (Silver Banksian Medal).

Messrs. Stuart Low & Co., Jarvisbrook, staged a bright and pretty group, including good examples of *Cattleya* *Trianae*, *Leda*, *Maggie Raphael alba* and *Octave-Doin*, *Brassocattleya* *Sanderi* and *Maronii*, several good examples of *Læliocattleya* *Doris*, *Oncidium* *Kramerianum*, *splendidum* and *varicosum* *Rogersii*, *Odontoglossum* *Uroskinneri* and *McNabianum*, with a few white forms of *Lælia* *anceps* (Silver Banksian Medal).

Messrs. J. & A. McBean, Cooksbridge, staged a good group, including several *Lælia* *anceps* *Schroederiana*, some fine *Cymbidium* *Alexanderi* and *Schlegelii*, *Lycaste* *Barringtoniae* with twelve fine flowers, the handsome *Oncidiodes* *Cooksoniae*, *Sophrocattleya* *Marathon*, and a few good *Odontoglossums* and *Odontiodas* (Silver Banksian Medal).

Messrs. Sander & Sons, St. Albans, staged a good group, including several forms of *Cattleya* *Trianae*, *Cymbidium* *Gottianum*, and others, the rare *Masdevallia* *trinema*, *Gomeza* *Barkeri*, well-flowered examples of *Epidendrum* *polybulbon*, *Brassocattleya* *sulphurea* var. *amabilis* (*B.-c. Leemaniae* × *C. Gaskelliana alba*), a pretty light form with rosy veining on the lip, *Odontoglossum* *McNabianum* *majesticum*, bearing a fine panicle of about forty flowers, and a few *Cypripediums* (Silver Banksian Medal).

Messrs. Flory & Black, Slough, sent a very fine form of *Læliocattleya* *luminosa*, *Odontioda* *Simone* (*Oda. Bradshawiae* × *Odm. Vuylstekei*), having light yellow flowers blotched with red, and a plant of the distinct *Eria* *rosea*.

Messrs. Hassall & Co., Southgate, sent a good form of *Brassocattleya* *Menda*, and a handsome *Odontioda*.

AWARD OF MERIT.

CATTLEYA TRIANÆ ALBA *QUEEN ELIZABETH*.—A large and beautiful albino, having broad undulate petals and lip, the disc of the latter being light yellow. Exhibited by J. Gurney Fowler, Esq.

At the meeting held on February 16th there was again a good display of Orchids, and the awards consisted of five medals, and three Awards of Merit.

Orchid Committee present: J. Gurney Fowler, Esq. (in the Chair), Messrs. J. O'Brien, De Barri Crawshay, R. Brooman White, Gurney

Wilson, W. Bolton, S. W. Flory, W. H. White, H. G. Alexander, J. E. Shill, W. H. Hatcher, C. H. Curtis, J. Cypher, J. Charlesworth, W. Cobb, Pantia Ralli, A. McBean, R. G. Thwaites, F. J. Hanbury, J. Wilson Potter, Stuart H. Low, R. A. Rolfe, Sir Harry J. Veitch, and Sir Jeremiah Colman, Bart.

Sir Jeremiah Colman, Bart., Gatton Park, Reigate (gr. Mr. Collier), staged a very fine group, to which a Silver Flora Medal was given. It consisted chiefly of well-grown *Cymbidiums*, and included *C. grandiflorum* with two fine spikes, *C. Lowio-grandiflorum*, *C. Gottianum*, *C. gattonense*, *C. Lady Colman*, *C. Queen of Gatton* (insigne $\times$ *Lady Colman*), and *C. Woodhamsianum* var. *Aurora* (*Veitchii* $\times$ *Lowianum* concolor), several of them in two or more examples. There was also a fine *Anguloa Cliftonii*, with three flowers.

J. Gurney Fowler, Esq., Brackenhurst, Pembury (gr. Mr. Davis), sent *Cypripedium Ernest Read*, a light-coloured *Cypripede* of unrecorded parentage, recalling a form of *C. Felicity*.

C. J. Phillips, Esq., The Glebe, Sevenoaks, sent a good form of *Odontioda Brunette*, with dark purple flowers, and *Cattleya Trianæ* Lord Kitchener, a very fine form with lilac-rose sepals and petals and a darker lip.

Pantia Ralli, Esq., Ashted Park, Surrey (gr. Mr. Farnes), sent the handsome *Brassocattleya Menda*, and *Odontoglossum crispo-Wiganianum* var. *Buttercup*, a bright yellow form with a few red-brown blotches.

Baron Bruno Schröder, The Dell, Englefield Green (gr. Mr. Shill), showed flowers of the fine *Cattleya Trianæ Mooreana* and *C. T. Premier*.

Messrs. Charlesworth & Co., Haywards Heath, staged a very fine group, including good examples of *Odontoglossum armainvillierense* and var. *xanthotes*, *O. apterum*, *Odontioda Latona* var. *Harlequin*, with prettily blotched flowers, the distinct *Odontonia Longowoyi*, a well-bloomed *Sophrolælia Psyche*, *Sophrocattleya warnhamensis*, good examples of *Brassocattlælia Joan*, *Cœlogyne sparsa*, some good forms of *Cattleya Trianæ*, and a cut spike of the rare *Neomooreana irrorata* (Silver Flora Medal).

Messrs. Stuart Low & Co., Jarvisbrook, staged a good group, including *Cymbidium Alexanderi*, *Schlegelii*, and *Coningsbyanum*, well-flowered examples of *Dendrobium Jamesianum*, the handsome *Oncidioda Cooksoniæ*, some good plants of *Lælia anceps Sanderiana*, *Oncidium Cavendishianum*, *Lanceanum* and *splendidum*, *Odontioda Euterpe*, *Sophrocattleya Blackii*, and others (Silver Banksian Medal).

Messrs. J. & A. McBean, Cooksbridge, staged a small group of well-grown plants, including *Cymbidium Gottianum*, *Alexanderi*, and *Schlegelii*, *Odontioda Diana* and *Bradshawiæ*, *Lælia anceps Schröderiana* and *L. a Fascinator*, the latter a good rose-coloured form, a hybrid between *Cypripedium Leeanum* and *Druryi*, and several others (Silver Banksian Medal).

Messrs. Sander & Sons, St. Albans, staged an interesting group, including some good *Cypripediums* and forms of *Cattleya Trianae*, a well-bloomed *Dendrochilum glumaceum*, *Renanthera Imschootiana*, *Saccolabium bellinum*, a fine *Odontoglossum McNabianum*, *Masdevallia Pourbaixii*, *Cœlogyne flaccida*, *Dendrobium Findlayanum*, some good *Odontiodas*, the rare *Eria lanata*, and others (Silver Banksian Medal).

Messrs. Flory & Black, Orchid Nursery, Slough, sent a hybrid *Cypripedium* allied to *C. Leea*.

Messrs. Hassall & Co., Southgate, sent *Sophrocattleya Cleopatra* and a light-coloured form of *Cattleya Trianae*.

Messrs. Mansell & Hatcher, Rawdon, East Yorks., sent *Odontioda Joan Rawdon* var. (*Odm. armainvillierense* × *Oda. Charlesworthii*), having well shaped magenta-crimson flowers, with some dark markings on the lip, and a yellow crest.

AWARDS OF MERIT.

CYMBIDIUM SCHLEGELII FOWLER'S VAR. (*insigne* × *Wiganianum*).—A very fine form, having large blush white flowers, the sepals and petals lined with pink, and the lip very broad and copiously blotched with crimson. Exhibited by J. Gurney Fowler, Esq.

ODONTIODA PATRICIA (*Odm. Phœbe* × *Oda. Charlesworthii*).—A fine form, having acuminate, bright ruby-purple sepals and petals, and the lip white with a large ruby-red blotch, and a yellow crest. Exhibited by Messrs. Charlesworth & Co.

ODONTOGLOSSUM SANDHURSTIANUM (*coronarium* × *Edwardii*).—A striking hybrid, most like the former in shape and texture, but of deep claret colour, with a yellow disc to the lip. Exhibited by C. J. Phillips, Esq.

MANCHESTER & NORTH OF ENGLAND ORCHID.

A meeting was held at the Coal Exchange, Manchester, on February 4th, when the members of Committee present were: Z. A. Ward, Esq. (in the Chair), Messrs. R. Ashworth, J. Bamber, J. J. Bolton, J. C. Cowan, J. Cypher, J. Evans, A. Hanmer, Dr. Hartley, J. Howes, A. J. Keeling, J. Lupton, D. McLeod, C. Parker, H. Thorp, G. Weatherby, and H. Arthur (Secretary).

A Silver-gilt Medal were awarded to R. Ashworth, Esq., Newchurch (gr. Mr. Gilden), for a very fine and varied group, in which *Cypripediums* and *Odontoglossums* were strongly represented.

Large Silver Medals were given to Wm. Thompson, Esq., Walton Grange (gr. Mr. Howes); Z. A. Ward, Esq., Northenden (gr. Mr. Weatherby); Col. J. Rutherford, M.P., Blackburn (gr. Mr. Lupton), and Messrs. J. Cypher & Sons, Cheltenham, for fine representative groups.

Silver Medals were awarded to Mrs. R. le Doux, West Derby (gr. Mr.

Fletcher); Messrs. J. & A. McBean, Cooksbridge, and Messrs. Sander & Sons, St. Albans, for good groups.

F. A. Hindley, Esq., Bradford, was awarded a Bronze Medal for a good group of *Cypripediums*.

Interesting exhibits were also sent by Mrs. Armitage, Windermere (gr. Mr. W. Welch); O. O. Wrigley, Esq., Bury (gr. Mr. Rogers); Messrs. A. J. Keeling & Sons, Bradford, and Messrs. Hassall & Co., Southgate.

FIRST-CLASS CERTIFICATES.

Odontoglossum illustrissimum var. Sultan, and *O. eximium* var. Cairo, both very fine flowers, with almost solid port wine colour, from R. Ashworth, Esq.

Cattleya Trianae alba var. Snowflake, a very fine pure white flower, from Mrs. R. le Doux.

AWARDS OF MERIT.

Odontoglossum Walton Ruby, *O. amabile* Thompsonianum, and *Cypripedium aureum* Hyeatum Thompson's var., from Wm. Thompson, Esq.

Cypripedium Lord Fisher (*Alcibiades superbum* × *chrysotoxum* Victor), from Mrs. Armitage.

Brassocattleya Brenda Ashlands var., from R. Ashworth, Esq.

At the meeting held on February 18th the members of Committee present were: Z. A. Ward, Esq. (in the chair), Messrs. R. Ashworth, J. J. Bolton, J. C. Cowan, J. Cypher, A. G. Ellwood, J. Evans, A. Hanmer, J. Howes, A. J. Keeling, D. McLeod, C. Parker, W. Shackleton, H. Thorp, G. Weatherby, and H. Arthur (Secretary).

Large Silver Medals were awarded to R. Ashworth, Esq., Newchurch (gr. Mr. Gilden), and to William Thompson, Esq., Walton Grange (gr. Mr. Howes), for fine miscellaneous groups, while a similar award went to Z. A. Ward, Esq., Northenden (gr. Mr. Weatherby), for a group of well-grown *Odontoglossums*.

Silver Medals were given to Mrs. R. le Doux, West Derby (gr. Mr. Fletcher), F. A. Hindley, Esq., Bradford, Messrs. Cypher & Sons, Cheltenham, Messrs. Sander & Sons, St. Albans, Messrs. A. J. Keeling & Sons, Bradford, and Mr. W. Shackleton, Bradford, for good groups, the last-mentioned consisting of *Odontiodas* raised from the same seed pod, and showing great diversity of form and colour.

Interesting exhibits were also sent by P. Smith, Esq., Heaton Mersey (gr. Mr. Thompson), S. Gratrix, Esq., Whalley Range (gr. Mr. Brown), Messrs. Charlesworth & Co., Haywards Heath, Messrs. Hassall & Co., Southgate, and Mr. D. McLeod, Chorlton-cum-Hardy.

FIRST-CLASS CERTIFICATES.

Odontoglossum crispum Walton Beauty, a good round flower, with

richly marbled markings, and *Cypripedium aureum* Hyeannum Goliath, a huge flower of the type, from Wm. Thompson, Esq.

Odontoglossum Herculanum (parentage unknown), a large round flower of perfect form, measuring $3\frac{1}{2}$ inches across, and white, with large single blotches on the sepals, petals, and lip, from R. Ashworth, Esq.

Cypripedium Desdemona Haddon House var. (*Alcibiades* × *Mrs. Carey Batten*), a very fine flower, with the dorsal sepal three inches across, and well marked, with a large white margin, and the petals $1\frac{1}{2}$ inches wide, from P. Smith, Esq.

AWARDS OF MERIT.

Odontioda Patricia (*Charlesworthii* × *Phœbe*), and *Cypripedium Britannia* (parentage unknown), from Wm. Thompson, Esq.

Odontioda Mica (*Charlesworthii* × *Bradshawiæ*), from R. Ashworth, Esq.

AWARDS OF APPRECIATION.

Odontioda Euterpe (*O. Uroskinneri* × *C. Nætzliana*), and *Oncidioda waltonense* (*M. vulcanica* × *Oncidium incurvum*), from Wm. Thompson, Esq.

THE LATE M. JULES HYE DE CROM.—At a meeting of the Orchid Committee of the R.H.S., held on March 2nd, Sir Harry J. Veitch, in moving a vote of condolence, referred in feeling terms to the loss which horticulture, and especially Orchidology, had sustained by the lamentable death of M. Jules Hye de Crom under the sad circumstances reported. Sir Harry said the deceased gentleman was an old and respected bond between British and Belgian Orchidists, and he had acted with many of them as a colleague at horticultural events in this country and on the Continent. Mr. J. Gurney Fowler supported the motion, and the honorary secretary was instructed to forward a letter of sympathy to the widow.

There seems to be some uncertainty as to the circumstances of M. Jules Hye's death, but the *Gardeners' Chronicle* states that he fell a victim to the Germans. The latter are said to have asked for wine from M. Hye, and having drunk too much became ill. Believing themselves to be poisoned they imprisoned M. Hye and several of his assistants for five days, during which time they momentarily expected to be shot. They were then released, a chemical analysis having proved their innocence. M. Hye, however, died a few days after his release, and as a consequence of the ill-treatment he had received whilst under arrest. The *Orchid World* states that on the occupation of Ghent by the Germans M. Hye took refuge in Holland with a friend, leaving his valuable business and an extensive Orchid collection to the mercy of the enemy. A few valuable Orchids, however, are said to have been secured by his gardener, after much difficulty, and brought to England. Verification is difficult, for the ordinary channels of correspondence are closed.

LYCASTE BALLIÆ.

LYCASTE Skinneri is one of the best known and, when well grown, one of the handsomest of garden Orchids, and some of its hybrids partake largely of its own attractive character. The annexed figure represents a very floriferous and brilliantly-coloured hybrid between it and *L. macrophylla*, for which Messrs. Charlesworth & Co. received from the R.H.S.



Fig. 8. LYCASTE BALLIÆ.

a First-class Certificate in January, 1903. The plant bears no fewer than thirteen flowers from a single pseudobulb. Our first knowledge of this hybrid was the receipt, in January, 1896, of a flower from the collection of G. Shorland Ball, Esq., with this record, at which time we referred it somewhat doubtfully to the earlier *L. schœnbrunnensis* (*C.R.*, iv. p. 40). The latter was raised in the collection of the Emperor of Austria, at Schœnbrunn, near Vienna, and was described at page 51 of our first volume, when the parents were suggested as *L. Skinneri* and *L. Schilleriana*, there being a doubt about the second one. Mr. Ball's plant, however, proved distinct,

hence it was named *L. Balliæ*, and in November, 1898, it received a First-class Certificate from the Manchester Orchid Society (*O.R.*, vi. p. 371). The flowers have terra cotta sepals, rosy petals fading into white at the apex, and a white lip irregularly spotted with carmine. Three other hybrids we believe must be regarded as forms of the same, namely, *L. Mary Gratrix*, *L. Cappei*, and *L. Charlesworthii*.



THE AMATEUR'S COLLECTION.



By C. ALWYN HARRISON.

THIS month is a very trying one to beginners, for the climatic conditions are very treacherous, cold, piercing winds being generally accompanied by brilliant sunshine, which renders the question of ventilation somewhat trying. The following, however, is my system of cultivation: Keep a nice warmth in the pipes, and open the bottom ventilators at least a few inches on the side of the house not exposed to the prevailing wind. This will result in the house being filled with nice buoyant air, which at the same time will not chill the plants. A mean temperature of 55° to 60° Fahr. can now be given, since the days are lengthening and the power of the sun also increasing.

The Orchids which are growing or flowering will need to be supplied with more water than advised earlier in the season; but continue to give it in sparing quantity to those which are resting or freshly potted. To the latter, a gentle spray over the leaves, on bright days, will be found of much benefit, whilst to those in full growth or in bud, a good dose every other day will probably be needed, but no hard and fast rule can be set down, as the weather is so changeable and each house in every locality differs in its power of retaining moisture, but the above will serve as a rough guide. Two remarks upon watering are, however, so important as to warrant repetition. (1) When applying water to a plant give a good soaking, *never* a mere sprinkle over the surface; (2) Always use rain water. Hard water invariably leaves a coating of chalk on the leaves and closes the pores so that it is impossible for the plant to breathe properly. Damping between the pots and on the path may, however, be done with hard water if the available supply of rain-water is short, and will now be needed usually twice daily, early in the morning and again about three p.m., whilst the plants are much benefited by a spraying over their leaves daily.

THRIPS.—If the atmosphere is not kept well charged with moisture, thrips will make their appearance, and I find the best remedy is to spray the plants with a solution of “Abol” or XL All Insecticide, and also increasing the amount of atmospheric moisture.

LÆLIA ANCEPS will still be making a grand show, and is a very suitable and fine Orchid for an amateur's collection, being free-flowering and of easy culture. To those in bud and spike give good supplies of water, but after blossoming a decided rest until the new bulbs are seen to be making their appearance. If needing it, that is the best time to re-pot, and, since these Orchids need much light to be grown to full advantage, I like to place them in Orchid pans, which can easily be suspended from the roof of the house. In performing the operation, remove the plants carefully from their old receptacle and cut away all useless back bulbs; three old ones are quite sufficient to support each new growth. Cut off any dead roots and sponge the leaves and bulbs with tepid rain-water. Place a few clean crocks in the bottom of the fresh pan, and on these set the plant well in the centre to allow for further growth. Where it is desired to have good specimens, several plants may be accommodated in a large-sized pan, but in this case place each one back to back, so that the leading growths may grow well away from each other. Pot very firmly, using a compost of Osmunda fibre and a little sphagnum moss. I find this latter ingredient invaluable, as it holds water well and prevents the plants drying up quickly, which they do to an alarming extent when suspended close to the glass, especially in summer.

Being a very strong rooting plant, it will be found a good plan to peg down the rhizomes with copper wire, formed like hair-pins, as this prevents their lifting themselves and growing right out of the soil. I usually peg down the old bulbs, as they then tend to keep the new growths well in the compost. After re-panning, give each plant a good soaking and hang it up, and for several weeks onwards a good syringing every other day will suffice. *Lælia autumnalis* and *Gouldiana* need similar culture.

Cypripediums will now be growing strongly, and must always be kept moist.

Next month I shall hope to deal fully with the important subject of shading.

SUGGESTED ADDITION.

RENANTHERA IMSCHOOTIANA.—There are few Orchids which can compete with the above summer-flowering species for decorative effect, long, branching spikes bearing fifty or more blossoms being produced with great freedom, which will, under cool conditions, keep fresh for many weeks. The individual flowers are somewhat spidery in shape, of a bright red shaded with orange. It is of easy culture and very cheap. In growth it somewhat resembles *Vanda cœrulea*, having stems clothed with short thick distichous leaves. A warm, moist corner is needed during its period of growth, but cooler and drier conditions are necessary during the resting and flowering season.

 THE CHEMISTRY OF FLOWER COLOUR.

AT the meeting of the R.H.S. Scientific Committee, held on February 2nd, an interesting account of the chemistry of flower colour was given by Dr. Frederick Keeble, F.R.S. The formation of colour in flowers is one of the physiological problems of plant life that has remained somewhat in the background, owing to the difficulties encountered in investigating the minute quantities that often suffice to form an intense pigment, and the factors that may completely change the colour of the whole flower or of any particular section. Colour production is a by-product of the great process of life. The different colours are due to the varying colour of the cell sap, to the different distribution of such cells in the tissues, and also to the various combinations of dissolved colouring matter with the yellow, orange, red, and green chromoplasts.

It was demonstrated by a series of experiments that an extremely close relationship exists between the anthocyan pigments of the flower, blue, red, magenta, and pink, and oxydases, which lends support to the view that they are due to the action of oxydase on chromogens. The latter are colourless bodies which are liberated from the living substance of the plant, and unite with oxygen to form various pigments. The rate and extent of the oxydisation are important factors, this depending upon the constitution of the cells situated at different parts of the flower. Delay in development may also occur in young or starved plants, possibly due to the lack of chromogen and the oxydising agent. Richly coloured flowers generally occur on vigorous plants.

In many flowers a beautiful system of darker veining may be observed and until recently these veins were regarded as the means by which the colour was brought up from the plant and diffused over the flower. Dr. Keeble, however, suggested that these veins pour out some material necessary for the process of coloration, without which the chromogen, or mother of pigment, is unable to develop. Many flowers have white patches where both chromogen and the oxydising agent are present, but where the presence of a third substance exerts an inhibiting or paralysing effect on the process of coloration. Albinism may result from lack of chromogen, or from the presence of a paralysing factor, which prevents the development of colour.

At the conclusion of the lecture specimens of the anthocyan pigments, as prepared by Willstätter and Everest, were exhibited.

At the meeting of the Orchid Committee held on February 16th Mr. J. Charlesworth exhibited a series of ten forms of *Odontioda Brunette* (Oda-

Bohnhofæ × Odm. Harryanum), all derived from the same seed pod, to illustrate the remarkable diversity in colour development among secondary hybrids, and as affording evidence of the altogether erratic behaviour of the colour-developing elements. In the majority the prevailing colour was dull dark purple, in some cases with more or less whitish tint between the blotches, but in others the ground was yellow, with browner blotches. There was also much variation in the colour of the lip, and in the shape of the segments.

These flowers were also exhibited by Mr. Gurney Wilson at the meeting of the Scientific Committee, as illustrating phenomena of colour distribution that were extremely common among secondary hybrids, and it was quite evident that other problems were involved.

THE MUTATION THEORY.—A paper, entitled “Some fundamental morphological objections to the Mutation Theory of De Vriese,” appears in the January issue of the *American Naturalist* (pp. 5-21), which has some interest for lovers of Orchids. The chief foundation of the theory was furnished by the conduct of *Oenothera Lamarckiana*, which under cultivation gave rise suddenly to forms dissimilar to itself, which forms, it was alleged, proved constant and had all the attributes of species. The view was soon advanced that these “Mutants” were the products of hybridity, and that *Oenothera Lamarckiana* was a hybrid, further evidence of which was to be found in the fact that about one-third of its pollen was abortive. The phenomena of mutation have since been observed in other species of *Oenothera*, and Prof. Jeffrey advances the view that not only is the genus generally characterised by genetically impure or hybrid species, but that the condition of genetic impurity is extremely common in the Onagraceæ as a whole—a view supported by a number of observations and photographs. He remarks that unusual variability is ordinarily regarded as *prima facie* evidence of hybridism, and recalls the fact that hybridisation is one of the commonest expedients adopted by the practical breeder for breaking up the continuity of the germ plasm. He then remarks that hybridism is a commonly recognised feature among flowering plants, and work carried on in the Harvard laboratories has revealed a large number of hidden hybrids, or “cryptohybrids,” which are quite constant in their characters, and are recognised by systematists as good species, but differ from normal species in the fact that their reproductive cells are to a greater or less degree abortive. Such facts, it is contended, invalidate the mutation hypothesis of De Vriese. It would be interesting to see how far these observations are applicable to hybrid Orchids, which are certainly common in nature, while materials for observation abound in almost every Orchid collection.

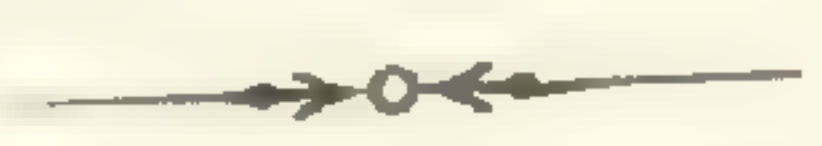
 ODONTOGLOSSUM CERVANTESII.

THREE distinct forms of the charming little *Odontoglossum Cervantesii* are sent from the collection of R. Ashworth, Esq., Ashlands, Newchurch, by Mr. Gilden. One is the typical form, having white flowers barred with brown at the base of the segments; another the variety *decorum*, from the plant exhibited at the R.H.S. meeting held on February 2nd; but in the third the brown lines are very numerous and extend quite two-thirds of the way to the apex. It flowered out of the same importation as the type. We do not find anything quite identical, for it can scarcely be the variety *punctatissimum* in undeveloped condition, but we should like to see what the flower is like another year before suggesting a name. It may be interesting to mention the varieties already known.

O. CERVANTESII PUNCTATISSIMUM was described in 1878 (*Rchb. f. in Gard. Chron.*, 1878, i. p. 527), as follows: "When I described *O. Cervantesii decorum* with its deeply lobed lip and its elegant colours, I believed we had reached the acme of elegance in the species. I just now see at Mr. Bull's establishment what surpasses by far any of those beautiful things I have ever seen. Imagine a very good *O. decorum* having the flower covered over with minute purplish dots, so that at a distance you are mistaken by their mass to believe them clouds. The whole flower appears covered with these undulations of purplish tinge."

O. CERVANTESII DECORUM appeared in the collection of the late Sir Trevor Lawrence, Bart., Burford, Dorking, and received a First-class Certificate from the R.H.S. in February, 1877. It is recorded as a great improvement on the old *O. Cervantesii*, both in size of flower, with denser markings, and brighter colour (*Gard. Chron.*, 1877, i. p. 219). A figure then appeared in the *Floral Magazine* (t. 254), showing an unusual number of markings on the lip, these extending almost to the apex. It was also figured by Mr. Day (*Orch. Draw.*, xii. t. 42), Mr. Day remarking: "This is certainly the finest flower I have ever seen of this lovely species. It was sent to me by Sir Trevor Lawrence, Bart."

O. CERVANTESII ROSEUM has the flowers prettily suffused with light rose pink, but in other respects is much like the type, with which it is occasionally found.

——
 HELP FOR BELGIAN HORTICULTURISTS.—At a meeting of the R.H.S. Orchid Committee, held on March 16th, Sir Jeremiah Colman, Bart., made a suggestion with a view to helping Belgian horticulturists who have

sustained losses during the war. He thought that help might be afforded by the sale of Orchids given for the purpose by members of the Committee and others, and expressed the pleasure he would feel in contributing to such a scheme or assisting in any way that might be decided upon. He was aware that the Council had the matter of relief generally in hand, but he thought that some movement independent of that would be of material help. Mr. Gurney Fowler agreed with the spirit of Sir Jeremiah Colman's suggestion, and advised the members to think it over and give their opinion at the next meeting.

NEW HYBRIDS.

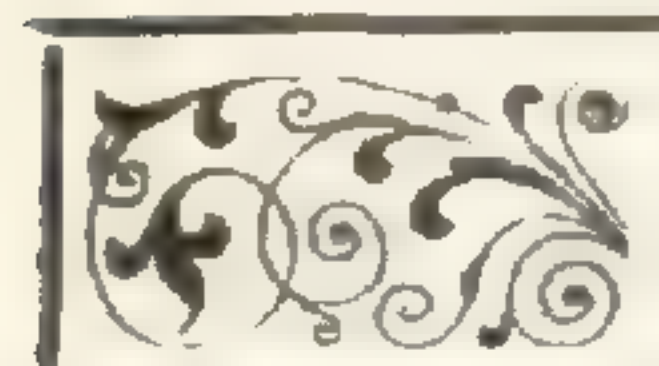
CYMBIDIUM BUTTERFLY (*Lowio-grandiflorum* × *insigne*).—A striking hybrid raised in the collection of Lt.-Col. Sir George L. Holford, Westonbirt, by Mr. Alexander. Eight forms are sent, all out of the same seed-pod, together with flowers of the two parents. One has cream-coloured sepals and petals, another light yellow, and six have them variously striped with rose-pink, while the lip also varies considerably. In five cases the crimson markings on the lip take the form of more or less confluent lines, and in the other three of individual spots, the latter having fewer markings on the side lobes. On the whole the flowers most resemble the seed parent in shape.

CYMBIDIUM POLLUX (*Veitchii* × *Wiganianum*).—A handsome hybrid from the collection of G. Hamilton Smith, Esq., Northside, Leigh Woods, Clifton (gr. Mr. Coningsby). It combines well the characters of the two parents, having yellow sepals and petals closely lined with red, and the lip veined with crimson on the side lobes and spotted on the front lobe. It should develop into a fine thing.

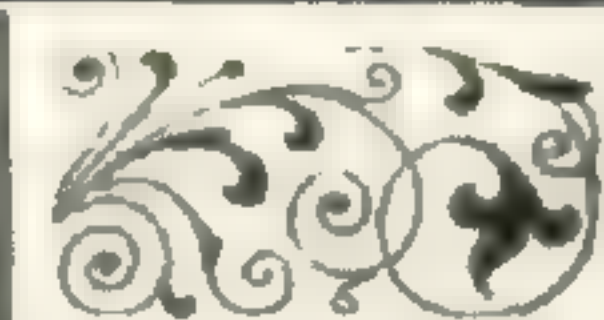
ODONTIODA VIVID (*C. Noëtzliana* × *O. illustrissimum*).—A brilliantly-coloured hybrid, exhibited at the R.H.S. meeting held on February 2nd last, by J. Gurney Fowler, Esq., Brackenhurst, Pembury (gr. Mr. Davis). It bore a panicle of deep blood-red flowers.

ODONTIODA SIMONE (*Oda. Bradshawiae* × *Odm. Vuylstekei*).—A promising hybrid, raised by Messrs. Flory & Black, Orchid Nursery, Slough, and exhibited at the R.H.S. meeting held on February 2nd last. The flowers are yellow with chocolate red markings.

ODONTIODA CYNTHIA (*Oda. gattonensis* × *Odm. crispum*).—An interesting hybrid, raised in the collection of Sir Jeremiah Colman, Bart., Gatton Park, Reigate (gr. Mr. Collier), and exhibited at the R.H.S. meeting held on January 5th last. The flowers of the seedling exhibited are sulphur yellow, the scarlet colour being eliminated.



ORCHID NOTES AND NEWS.



THREE meetings of the Royal Horticultural Society will be held at the Royal Horticultural Hall, Vincent Square, Westminster, during March, on the 2nd and 16th and 30th. The Orchid Committee will meet at the usual hour, 12 o'clock noon.

The Society's Chelsea Show will be held in the Royal Hospital Gardens, Chelsea, on May 18th, 19th, and 20th, and the Holland House Show on July 6th, 7th, and 8th. Plans, Schedules, and Entry Forms can be had on application to the Secretary, Royal Horticultural Society, Vincent Square, Westminster.

The Manchester and North of England Orchid Society will hold meetings at the Coal Exchange, Manchester, on March 4th and 18th, and April 1st. The Committee meets at noon, and exhibits are open to the inspection of members and the public from one to four p.m.

MR. J. GURNEY FOWLER, head of the firm of Messrs. Price, Waterhouse & Co., Chartered Accountants, and Chairman of the Orchid Committee of the Royal Horticultural Society, has been appointed by the Government as Consulting Accountant in connection with the compensation payable to the Railways whose undertakings have been taken over by the State.

Our American contemporary, *Horticulture*, in its issue for February 20th, figures a fine group of *Cypripediums* from the collection of Mrs. B. B. Tuttle, Naugatuck, Conn. The photograph was taken by Mr. M. J. Pope, Mrs. Tuttle's able gardener.

At a meeting of the Pittsburgh Florists' and Gardeners' Club, held on February 2nd, Cultural Certificates were given to a finely-flowered specimen of *Coelogyne cristata*, exhibited by the Pittsburg Cut Flower Co., and to two finely-flowered plants of *Dendrobium nobile*, in 4in. pots, exhibited by Mr. Walter James.

At a meeting of the Massachusetts Horticultural Society, held on February 6th and 7th, a Certificate of Merit was given to Mr. Weld Garden for a *Cymbidium* seedling (*C. insigne* × *C. Wiganianum*). This, it may be added, is a form of *C. Schlegelii* (*O.R.*, xx. p. 86).

HABENARIA ROBINSONII, Ames.—A new Philippine *Habenaria* has been described by Mr. Oakes Ames (*Philip. Journ. Sci.*, vii. p. 5), that may have some interest for horticulturists. It is remarked: "This very beautiful

species bears a striking similarity to *H. militaris*, from which it is readily distinguished by its very different leaves, long aristate bracts, and white flowers." It is a native of the Island of Luzon, and was collected at the Molauin River, in the province of Laguna, "on rocks in the river," by Dr. C. B. Robinson, and "on mossy boulders in the stream bed," by Mr. E. D. Merrill. We have not seen it.



ORCHID PORTRAITS.



BRASSOCATTLEYA CLIFTONII ALBENS.—*Gard. Chron.*, i. p. 168, suppl. fig.

CATTLEYA LUEDDEMANNIANA STANLEYI.—*O.W.*, v. pp. 110, 111, fig.; *Journ. Hort.*, 1915, i. p. 103, fig.

CATTLEYA TRIANÆ QUEEN ELIZABETH.—*Garden*, 1915, p. 80, fig.

CYMBIDIUM SCHLEGELII FOWLER'S VAR.—*Gard. Chron.*, 1915, i. p. 108, fig. 30.

CYPRIPEDIUM JUNO.—*Horticulture*, 1915, p. 237, fig.

DENDROBIUM TRIUMPH.—*Gard. Chron.*, 1915, i. p. 76, fig. 23.

MORMODES TIGRINUM, Rodr.—*Bot. Mag.*, t. 8597.

ODONTIODA LATONA FOWLER'S VAR.—*O.W.*, v. p. 99, fig.

ODONTIODA PATRICIA.—*Gard. Mag.*, 1915, p. 102, fig.

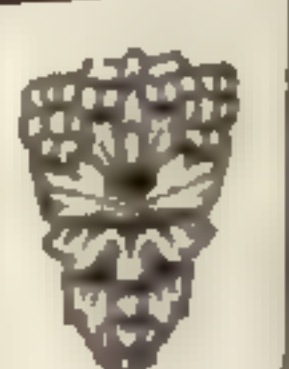
ODONTOGLOSSUM CERES MAGNIFICUM.—*Gard. Mag.*, 1915, p. 59, fig.

ODONTOGLOSSUM CITROSMUM.—*O.W.*, v. pp. 100, 106, fig.

ODONTOGLOSSUM CRISPUM CONSTANCE.—*O.W.*, v. p. 110, fig.



ANSWERS TO CORRESPONDENTS.



[Orchids are named and questions answered here as far as possible. Correspondents are requested to give the native country or parentage of plants sent. An ADDRESSED postcard must be sent if a reply by post is desired (abroad, reply postcards should be used). Subjects of special interest will be dealt with in the body of the work]

W.G.—We have not found anything quite identical. Letter follows.

E.T.—Many thanks. A note has been held over.

T.C.—We do not find a record for this hybrid, and will duly record it.

A.G.F.—The smaller flower is *Cypripedium Appletonianum*, Gower, a Siamese species that is imported with *C. callosum*. The other may be a form of *C. Leeanum*, but the dorsal sepal is small and apparently undeveloped. It is not *C. L. superbum*, at all events in this condition.

M.D.—The source of the figures mentioned, and of many others, is Veitch's Manual of Orchidaceous Plants.

Beta.—An article on the subject is in preparation, and will probably appear next month.

PHOTOGRAPHS of interesting subjects will be very acceptable.

The Orchid Review

VOL. XXIII.

APRIL, 1915.

No. 268.

THE GENUS ODONTIODA

THE rise and development of this brilliant artificial genus is one of the wonders of modern horticulture. Less than eleven years ago *Odontioda Vuylstekeæ* made its first appearance—at the Temple Show, in 1904, to be exact—and now *Odontiodas* form one of the leading features at our horticultural exhibitions. By the time the *Orchid Stud-Book* was published, four additional hybrids had appeared, and in 1911, when a supplementary list was given in these pages, the number of primary hybrids had grown to 20, and, what is equally remarkable, no fewer than 23 secondary hybrids had been recorded. Fourteen of these represent unions between *Cochlioda* and hybrid *Odontoglossums*, but in nine cases an *Odontioda* had itself been used as a parent, eight being re-crosses with *Odontoglossum* and one with *Cochlioda*. The latter was *Odontioda Pixie* (*Cochlioda vulcanica* × *Odontioda heatonensis*). The number has since been greatly augmented, and we may now attempt a summary of the results obtained.

PRIMARY HYBRIDS.

Seven additional primary hybrids have now been added to the list, six of them having been derived from the scarlet *Cochlioda Nøetzlina* :—

ODONTIODA CARMEN (*Cochlioda Nøetzlina* × *Odontoglossum apterum*), *O.R.*, 1912, p. 185).—De B. Crawshay, May, 1912.

ODA. DON (*C. Nøetzlina* × *Odm. Lindleyanum*), *O.W.*, iii. p. 140.—J. & A. McBean, Feb., 1913.

ODA. IRIS (*C. Nøetzlina* × *Odm. hastilabium*), *O.R.*, 1913, p. 288 (unnamed).—Charlesworth & Co., Aug., 1913.

ODA. MARGARITA (*C. Nøetzlina* × *Odm. madrense*), *O.R.*, 1912, pp. 289, 311.—H. Graire, Sept., 1912.

ODA. MOSSIÆ (*C. Nøetzlina* × *Odm. maculatum*), *O.R.*, 1913, pp. 114, 128, 302.—J. S. Moss, March, 1913.

ODA. NEMESIS (*C. Nøetzlina* × *Odontoglossum Hallii*), *O.R.*, 1911, p. 246.—De. B. Crawshay, July, 1911.

ODA. ROLFEI (*C. vulcanica* × *Odm. Hunnewellianum*), *O.R.*, 1912, p. 199.—R. G. Thwaites, June, 1912.

SECONDARY HYBRIDS.

The secondary hybrids are so numerous that it will be convenient to classify them, so as to show their origin more clearly. They may be divided into four groups: (1) Crosses between *Cochlioda* and *Odontoglossum*; (2) *Odontioda* re-crossed with *Cochlioda*; (3) *Odontioda* re-crossed with *Odontoglossum*; and (4) *Odontioda* re-crossed.

1.—COCHLIODA × ODONTOGLOSSUM.

a.—*C. Noetzliana* hybrids.

ODONTIODA bella (*C. N.* × *Odm. bellatulum*), *O.R.*, 1912, p. 149.—De B. Crawshay, March, 1910.

ODA. CLEOPATRA (*C. N.* × *Odm. Cleopatra*), *O.R.*, 1912, p. 164.—Mansell & Hatcher, May, 1912.

ODA. DALTONENSE (*C. N.* × [*Odm. Phœbe*]), *O.R.*, 1913, p. 161.—J. H. Craven, March, 1912.

ODA. HEMPTINNEANA (*C. N.* × *Odm. eximium*), *O.R.*, 1914, p. 311, 1914, p. 114.—Sander & Sons, Aug., 1913.

ODA. HENRYI (*C. N.* × *Odm. harvengtense*), *O.W.*, ii. p. 164.—H. S. Goodson, March, 1912.

ODA. SANDERÆ (*C. N.* × *Odm. percultum*), *O.R.*, 1913, p. 136.—Sander & Sons, April, 1913.

ODA. STELLA (*C. N.* × *Odm. elegans*), *O.W.*, iii. p. 254.—Charlesworth & Co., July, 1913.

ODA. VIVID (*C. N.* × *Odm. illustrissimum*), *O.R.*, 1915, pp. 82, 94.—J. Gurney Fowler, Feb., 1915.

b.—*C. vulcanica* hybrids.

ODA. EVA-MAY (*C. v.* × *Odm. percultum*), *G.C.*, 1914, ii. p. 143.—R. G. Thwaites, July, 1914.

ODA. ISIS (*C. v.* × *Odm. Rolfeæ*), *O.R.*, 1914, p. 248.—R. G. Thwaites, July, 1914.

2.—ODONTIODA × COCHLIODA.

The hybrids of this small group naturally show a preponderance of the *Cochlioda* influence. Three are re-crosses with *C. Noetzliana*.

ODONTIODA ASPASIA (*C. sanguinea* × *Oda. Vuylstekeæ*), *O.R.*, 1912, p. 166.—Armstrong & Brown, April, 1913.

ODA. CHANTECLEER (*C. Noetzliana* × *Odontioda Goodsoniæ*), *O.R.*, 1912, p. 195.—Charlesworth & Co., May, 1912.

ODA. ELSIE (*C. Noetzliana* × *Oda. Charlesworthii*), *O.R.*, 1914, p. 151.—Charlesworth & Co., April, 1914.

ODA. FLAMINGO (*C. Noetzliana* × *Oda. Bradshawiæ*).—Sir Jeremiah Colman, March, 1915.

3.—ODONTIODA × ODONTOGLOSSUM.

The re-crosses with *Odontoglossum* are becoming exceedingly numerous, and some of them naturally show a considerable amount of reversion to the character of the latter, both in size and colour.

ODONTIODA ADRASTUS (*Oda. Bohnhofiæ* × *Odm. crispum*), *O.R.*, 1913, p. 220.—E. R. Ashton, June, 1913.

ODA. BRACKENHURST (*Oda. Charlesworthii* × *Odm. eximium*), *G.C.*, 1914, i. p. 231.—J. Gurney Fowler, May, 1914.

ODA. BREWII (*Oda. Charlesworthii* × *Odm. Harryanum*), *O.R.*, 1913, pp. 246, 322.—Charlesworth & Co., July, 1913.

ODA. BRUNETTE (*Oda. Bohnhofiæ* × *Odm. Harryanum*), *O.R.*, 1913, p. 347.—Charlesworth & Co., Oct., 1914.

ODA. CLOTHO (*Oda. Thwaitesii* × *Odm. Uroskinnei*), *O.W.*, v. p. 108.—Armstrong & Brown, Jan., 1915.

ODA. COLMANII (*Oda. Bradshawiæ* × *Odm. amabile*), *O.R.*, 1914, p. 125.—Sir Jeremiah Colman, March, 1914.

ODA. CRISPILIA (*Oda. Cecilia* × *Odm. crispum*), *O.R.*, 1914, p. 310.—R. G. Thwaites, Sept., 1914.

ODA. CYNTHIA (*Oda. gattonensis* × *Odm. crispum*), *O.R.*, 1915, pp. 55, 94.—Sir Jeremiah Colman, Jan., 1915.

ODA. DORIS (*Oda. Goodsoniæ* × *Odm. amabile*), *O.R.*, 1914, p. 59.—De Barri Crawshay, Jan., 1914.

ODA. FELICIA (*Oda. heatonensis* × *Odm. amabile*), *O.R.*, 1912, p. 153.—Charlesworth & Co., April, 1913.

ODA. GLADYS (*Oda. Bradshawiæ* × *Odm. Rossii*), *O.R.*, 1913, p. 370.—E. H. Davidson & Co., Nov., 1913.

ODA. JOAN (*Oda. Charlesworthii* × *Odm. armainvillierense*), *O.R.*, 1914, pp. 65, 139.—Charlesworth & Co., Jan., 1913.

ODA. KITTY (*Oda. wickhamiensis* × *Odm. armainvillierense*), *O.R.*, 1913, p. 192.—G. W. Bird, April, 1913.

ODA. LATONA (*Oda. Bradshawiæ* × *Odm. spectabile*), *O.R.*, 1912, p. 247.—Charlesworth & Co., July, 1912.

ODA MARGARET (*Oda. Bradshawiæ* × *Odm. armainvillierense*), *O.R.*, 1914, pp. 59, 85.—Charlesworth & Co., Jan., 1914.

ODA. MINERVA (*Oda. Bohnhofiæ* × *Odm. Edwardii*), *O.R.*, 1913, p. 348.—Armstrong & Brown, Oct., 1913.

ODA. OAKWOODIENSIS (*Oda. Bradshawiæ* × *Odm. percultum*), *O.R.*, 1913, p. 373.—Mrs. Norman Cookson, Nov., 1913.

ODA. OTHELLO (*Oda. gattonensis* × *Odm. Othello*), *O.R.*, 1915, p. 55.—Sir Jeremiah Colman, Jan., 1915.

ODA. PATRICIA (*Oda. Charlesworthii* × *Odm. Phœbe*), *O.R.*, 1913, pp. 139, 155, 167.—Charlesworth & Co., April, 1913.

ODA. PHYLLIS (Oda. Bradshawiæ × Odm. Lambeauianum), *O.R.*, 1914, p. 214.—G. W. Bird, June, 1914.

ODA. QUEEN-MARY (Oda. Vuylstekeæ × Odm. eximium), *O.R.*, 1912, p. 194.—Charlesworth & Co., May, 1912.

ODA. ROSSENDALE (Oda. Charlesworthii × Odm. Ceres), *O.R.*, 1915, p. 61.—R. Ashworth, Jan., 1915.

ODA. SCHRÆDERI (Oda. Bradshawiæ × Odm. crispum), *O.R.*, 1913, pp. 33, 57.—Charlesworth & Co., Jan., 1912.

ODA. SIMONE (Oda. Bradshawiæ × Odm. Vuylstekei), *O.R.*, 1915, pp. 83, 94.—Flory & Black, Feb., 1915.

ODA. VIVIENNE (Odm. Goodsoniæ × Odm. crispum), *O.R.*, 1914, p. 158.—Mrs. Norman Cookson, May, 1914.

ODA. ZENOBIA (Oda. Charlesworthii × Odm. percultum), *O.R.*, 1914, p. 119.—F. M. Ogilvie, March, 1914.

BOTH PARENTS ODONTIODAS.

We have already the beginning of a fourth group, in which both parents are *Odontiodas*, one of which has recently flowered, as follows:—

ODA. MICA (Oda. Bradshawiæ × Oda. Charlesworthii), *O.R.*, 1915, p. 87.—R. Ashworth, Feb., 1915.

It is curious to note that this hybrid is of the same specific composition as *Odontioda Leeana* (*Cochlioda Noetzliana* × *Odontoglossum spectabile*), which affords an illustration of what may be expected in the future.

In two cases a primary hybrid has been re-crossed with both its original parents, as in the following table, where 1 and 2 represent the species, 3 the primary hybrid, and 4 and 5 the secondary hybrids.

SPECIES.	PRIMARY HYBRIDS.	SECONDARY HYBRIDS.
1. <i>C. Noetzliana</i> .		4. <i>Oda. Flamingo</i> .
	3. <i>Oda. Bradshawiæ</i> .	5. <i>Oda. Schrœderi</i> .
2. <i>Odm. crispum</i> .		
1. <i>C. Noetzliana</i> .		4. <i>Oda. Elsie</i> .
	3. <i>Oda. Charlesworthii</i> .	5. <i>Oda. Brewii</i> .
2. <i>Odm. Harryanum</i> .		

The foregoing does not profess to be a complete list of the additions, for several have been recorded without parentage, or with at least one of the parents doubtful. It is probable that the majority are forms of existing hybrids that have not yet been allocated to their proper positions. In a few other cases there is uncertainty about the names.

 ODONTOGLOSSUM PRÆVISUM.

AN interesting hybrid *Odontoglossum*, raised from *O. Lindleyanum* crossed with pollen from *O. gloriosum*, is now flowering at Kew for the first time. The cross was made by the writer with the object of proving the parentage of a wild hybrid which flowered in the collection of W. Thompson, Esq., Walton Grange, Stone, in April, 1904, when it was forwarded by Mr. Stevens with the suggestion that it might be a natural hybrid between *O. Lindleyanum* and *O. gloriosum* or *O. Andersonianum*. It was then described as *O. prævisum* (*O.R.*, xii. p. 176), the name suggesting that its appearance had been foreseen. Eleven years earlier, when dealing with the natural hybrids from the *O. crispum* district, it was pointed out that five out of the six possible combinations were already known, while the appearance of the remaining one, between *O. gloriosum* and *Lindleyanum*, among the importations from the district, might be anticipated (*O.R.*, i. p. 277). Mr. Thompson's plant had very acuminate sepals and petals, spotted and blotched with light reddish brown on a yellowish white ground, while the influence of *O. Lindleyanum* was seen in the details of the column. The Kew plant is much brighter yellow, and the petals, especially, are densely dotted and lined on the lower half with brown, while there is a bright red-brown blotch on the lip in front of the very prominent crest, and the elongated column has long cirrhate wings. It combines well the characters of the two parents, and at its initial attempts has produced a panicle of 22 flowers. It closely resembles *O. Leeanum*, Rchb. f., in colour, but has less acuminate segments, which raises a question as to the parentage of the latter. This appeared as a unique plant in the establishment of Messrs. James Veitch & Sons, and its origin was not stated, but Reichenbach compared it with his *O. deltoglossum*, except in its larger lip and distinct colour. When afterwards it was figured in the *Botanical Magazine* (t. 8142) I suggested *O. gloriosum* and *triumphans* as the parents, for it is clearly distinct from *O. Andersonianum*, with which previously it had been associated. The variation of hybrids is notorious, and the question now remains whether the three mentioned are forms of one. It may be added that other plants of the batch of *O. Lindleyanum* × *crispum* (*O.R.*, xxi. p. 175) have bloomed, the latest being almost the exact match of an *O. Coradinei* figured by Mr. Day. It proves again that the facts cannot always be cleared up by the flowering of a single seedling, and that variation is not limited to secondary hybrids. The first seedling was more like *O. Lindleyanum*.
R.A.R.



ORCHID CULTURE IN BELGIUM.



(Concluded from page 72).

POTS, pans, and baskets are specially made for Orchids. The potting depends upon the rate of growth; seedlings are potted each year, but older plants less frequently. In repotting care must be taken not to damage the roots, which sometimes adhere to the outside of the pots, as in *Phalænopsis*, when the best plan is to break the pot. In most cases the old ball is broken, the old compost being removed, except a little which may adhere to the living roots. Roots, when too long, are shortened with a sharp knife. The pots are drained with clean crocks to about a quarter of their depth. The new material must be put in evenly, care being taken to have it equally firm throughout, the object being firmness with the necessary porosity. When the potting is completed the surface should be rough, and a little elevated for epiphytal species. The practice of basketing epiphytal species that have pendulous shoots and inflorescences is very common in Belgium. These are suspended about two feet from the roof, where they make luxuriant growths.

PROPAGATION.—The methods employed for Orchid propagation are many and varied. The commonest one is by severing portions from large plants when potting is done, as for example *Cattleya*, *Lælia*, and *Odontoglossum*. Big nurseries and the trade generally do not grow large specimens, as they are not so floriferous and are in various ways unsuitable for commercial purposes. In genera like *Anæctochilus* and *Vanilla* the propagation is effected by stem cuttings. *Vanda* and *Aërides* are propagated by layering. In *Phalænopsis* the inflorescence sometimes produces bulbils, which send out roots, and these can be potted on. The inflorescence of *Phaius* is cut off when the flowers are dead, and placed in a moist, shady place, where after a time it produces buds. These emit roots, and by severing these the stock can be increased. These methods, however, are of far less importance to the Orchid grower than reproduction by seeds, at all events since the introduction of hybridisation, on which subject a few remarks must be made, as it is the highest branch of the Orchidist's art. The object in hybridisation is to obtain new varieties, with improved form and colour.

SOWING THE SEEDS.—The seeds can be sown as soon as ripe, or preserved till later. If collected in the summer or autumn it is best to wait until the following spring before sowing. A common practice is to sow on the compost of the parent plants, and then keep them in a moist place. This is the method for *Cypripedium*, *Miltonia*, and *Odontoglossum*,

but most Belgian nurseries sow their *Cattleya* seeds on linen stretched over pots or pans of sphagnum. The pots are then placed in closed propagating cases with a temperature of 30° Centigrade (86° F.). The pots are stood in little pans of water, and the seeds germinate in about three or four weeks' time. When germinated a little ventilation can be admitted. After eight weeks the seedlings are ready for picking off into pans of fine moss and then replaced in the closed case again for a few days. When watering, a very fine sprayer is used. Later on they are put in very small pots and placed in a close atmosphere until they develop roots, when a little air can be admitted. A year later they are repotted again and placed in the growing house, after which annual potting is performed.

IMPORTATION OF ORCHIDS.—There is a constant stream of Orchids into Belgium from collectors in different tropical regions, as from South America, India, Malaya, the Philippines, and Japan. These plants when they arrive are either sold to private growers, or are grown for cut-flower purposes. In Orchid nurseries cut-bloom and the florist's trade is an important branch of the business. Paris can consume all that are grown. Of course a few of the specimens imported are either new or rare varieties, and are naturally kept for hybridisation. Importing Orchids entails a long voyage, sometimes many thousands of miles have to be covered. The packing and transit is very important, and different methods are used for the various types. For instance, *Cattleyas* and *Dendrobium* are easily packed in cases with ventilation holes. The best time for transport is when they have completed their growth, that is during the resting period. Others, like *Cypripedium* and *Vanda*, without pseudobulbs, are packed with shavings. The more delicate class of Orchids require special treatment. Such genera as *Phalænopsis* are cultivated, previous to transport, in a tropical garden. They are grown on blocks until they have developed their roots, and are then suspended in Wardian cases, like miniature green-houses. On their arrival at their destination the *Cattleyas*, *Lælias*, and *Dendrobiums* are laid on the stages, in rather dry empty houses, and kept shaded until they are potted up. The *Phalænopsis* are hung in the house where they are to be grown, and can be potted at once.

DISEASES.—Most Orchid growers are troubled with either fungoid diseases or insect pests. A grower may treat his plants well, yet he must be constantly on the alert for signs of disease. The commoner diseases are: First, in the seedling stage there is a parasitic fungus which attacks the seedlings. It is downy in appearance, and is probably the same fungus which causes other seedlings to damp off, namely, *Pithium Debarianum*. With this fungus prevention is better than cure. Use clean fibre and washed sphagnum, and dry it in the sun; that is the best remedy. I have observed another fungus which causes much destruction amongst *Odonto-*

glossums, as it produces spores on the under surface of the leaves, causing yellow patches on the surface. I think this disease is largely due to excessive moisture. The best cure for this is sponging. Spotting and decaying of foliage is common. This is due to mechanical agencies, such as excessive moisture and insufficient ventilation, perhaps also to lack of light. Some Orchids revel in sunshine, and when cultivated in a house that is too shady become weak, and finally die. To prevent this give a more sunny position. It is rare to find much evidence of disease in Nurseries, as it obviously means loss to the grower, both in its effect upon visitors and in the loss of plants, some of which are very valuable. Some particular disease will occasionally trouble a grower, this, perhaps, being due to incorrect cultural methods.

The commoner insect pests are :—

THRIP.—This pest is most prevalent. In Belgium we have different systems for killing thrip, the best one to my mind being effected by means of tobacco laid on wire netting placed beneath the stages. Another method is to fumigate with nicotine.

RED SPIDER.—This is largely due to dry atmospheric conditions. I once paid a visit to a nursery near Ghent, and there I saw a house full of *Phalænopsis Sanderiana* literally smothered with red spider. This was entirely due to a dry wall which they failed to damp. The best remedy is sponging with water or insecticide.

SCALE AND MEALY BUG.—These are common, but are easily kept in check by washing and cleanliness.

WOODLICE can be trapped with sliced potatoes, which should be examined each morning. SLUGS are caught with beer, and cockroaches destroyed with phosphor paste.

ORCHID FLY (*Isosoma Orchidearum*) lays its eggs in the young growths of *Cattleyas* and *Lælias*, and if it become numerous is most destructive. The remedy is to cut away the affected parts and burn them before the flies escape to lay more eggs.

A BEETLE (*Baridius aterrimus*) is sometimes present on imported plants of *Dendrobium Phalænopsis*, and on *Phalænopsis* from Singapore and Burmah. Although not very frequent it is most destructive, and the only method of destroying it is to watch the plants affected.

This vast industry is an international one. Apart from the scientific interest attached to Orchids, many people grow them for their beauty and peculiarity. Amateurs of all classes, but more especially the affluent peoples of the world, make Orchid cultivation their hobby, and from this wide-world popularity which the Orchid possesses, has developed the vast trade which now, or did prior to the present debacle, exists in Belgium.

HENRI PIERRE CHOLLET.

THE PANAMA EXHIBITION.

THE present article, regarding the Philippine Government Orchid Exhibit at the Panama-Pacific International Exposition, San Francisco, California, U.S.A., which has just been installed, is written



Fig. 9. ORCHIDS AT THE PANAMA EXHIBITION.

in the interest of those who may be unable to visit this great World Fair.

A very suitable conservatory has been constructed to grow the Orchids and to show them off to their best advantage. There are about seven hundred plants of *Phalænopsis*; these being *P. Schilleriana*, *P. amabilis*, *P. Lueddemanniana*, *P. Aphrodite*, *P. rosea*, and many fine natural hybrids from *P. amabilis* and *P. Schilleriana*. Most of the *Phalænopsis* are growing in baskets made of red wood (*Sequoia sempervirens*). These baskets will last from two to three years. There are also examples of *Thrixspermum pallidum*. Although the flowers of this species only last a few hours, they are, on the other hand, very fragrant.

There are over 130 *Dendrobium superbum* growing in six-inch baskets. These plants have made fine growth, and belong to a large flowering type. *Dendrobium crumenatum* is doing well. We have many plants of *Dendrobium Dearei* which have been flowering for the last three or four months, their flowers lasting three months. There are also *Dendrobium cariniferum*, *D. Wardianum*, *D. formosum*, *D. chrysanthum*, *D. Parishii*, *D. Dalhousieanum*, *D. crassinode*, *D. crepidatum*, *D. bigibbum*, *D. Infundibulum*, and many fine plants of *Cypripedium Argus* and *C. philippinense*. There is also a large plant, the largest that I have ever seen, of *Gramatophyllum Fenzlianum* in a three-foot basket, hanging in the centre of the house. A fine specimen of *Cymbidium Finlaysonianum* is seen growing in a 14-inch pot. This plant has flowered for the first time here, and it is a fine type.

In addition to the above-mentioned species, there are also in display specimens of the following: *Cymbidium tigrinum*, *Gramatophyllum multiflorum*, *Rhychostylis retusa*, *Aërides quinquevulnera*, *Spathoglottis plicata*, *Saccolabium miniatum*, *Vanda Sanderiana*, *Vanda lamellata*, *Vanda Boxalii* and *Vanda luzonica*. These Orchids arrived here from the Islands about one year ago, and I did not think at the time that they would be in flower on the opening day, but they have done remarkably well. In the centre of the house there is a staging 12 feet by 60 feet, which is one mass of flowering Orchids.

I may state that it has been my main object to make a demonstration of how to grow these Orchids, and this, I think, has pleased the people most.

In the background of the photo that I have sent is a garden seat built of palm stems that have been brought from the Islands, which, as you will see, is covered with Orchids. On taking the photo many plants in flower were placed above and below the seat to fill up gaps. On my right in the photo is my assistant, Mariano Reymundo, a very bright Filipino.

The Filipinos have brought a very fine band from the Islands, which plays every day.

W. E. EGLINGTON.

 CALENDAR OF OPERATIONS FOR APRIL.

By W. H. WHITE, for many years Orchid Grower to the
late Sir Trevor Lawrence, Bart., K.C.V.O.

SHADE AND VENTILATION.—The month of April, with its proverbial sudden changes of sunshine and showers, is, without doubt, a trying period to all who have the management of a collection of Orchids. On many an April day the changes in the weather are so numerous, between sunshine and shade, heat and cold, that it is almost impossible to keep the temperatures of the houses regular, although shading and ventilation, if carefully attended to, go a great way in averting fluctuations inside. East Indian Orchids, particularly *Phalænopsis*, some warm-growing *Vandas*, *Aërides*, *Saccolabiums*, and *Calanthes* in their earlier stages of growth, are, perhaps, more easily affected by varying temperatures than those from other parts of the world, as at this season the majority of the plants are growing fast, and if the growth be checked much harm to the plants may ensue. On several mornings lately it has been found necessary to use, in every division save the Cool house, a considerable amount of fire heat, in order to maintain the proper day temperatures. Even through the middle of the day the pipes have been kept warm, so that when the sun becomes suddenly obscured by heavy clouds we can, by closing or partially closing the ventilators, avoid any extreme fall in the temperatures. Should cold or boisterous weather prevail, it is therefore advisable to regulate the temperatures by means of the heating apparatus, and on no account to open the ventilators of the warmest house, as generally sufficient air will pass through the laps in the glass, and under the doors. At other times, when the external air is warm and still, air should be admitted more freely, opening the bottom ventilators a little at first, and as the inside temperature rises gradually increase the amount.

The blinds will, of course, require a good deal of looking after, but there is not the least need to keep working them for every trifling change in the weather. Keep them down on all changeable days, and up whenever scorching of the foliage is not feared. At this particular time of the year, and especially following a dull and extremely wet winter, the foliage of Orchids is more apt to get scorched by sunshine than at any other time, and it is much the safer plan in every division to err a trifle by giving too much shading rather than too little, as more injury is done to the plants from too much sun than too much shade. Through the summer, probably owing to the abundance of fresh air admitted to the houses, one seldom gets an Orchid scorched, while during the ripening days of autumn many plants are greatly benefited by all the sunshine they can obtain. In the

East Indian house, immediately the sun has sufficient power to raise the temperature six or seven degrees, the blinds should be lowered. The Cattleyas will not require shading quite so soon, but when the sunshine is bright and continuous, the sun being strong enough to overheat the foliage of the plants, the plants should be shaded. This may be judged when the leaves begin to feel warm to the touch. The blinds should be run down on the Odontoglossums and Masdevallias immediately the sun, on bright mornings, has raised the inside temperature to 55° , and it should be kept down so long as the sun shines upon the plants. Where the side lights or ends of houses allow the sun to play upon the plants or their pots, they should be covered outside with some thin material, or the glass may be thinly stippled.

In the East Indian house, where there is a great number of distinct species from both hemispheres, and from many different altitudes, it is sometimes very difficult to find suitable positions for the plants, some requiring plenty of light, and others a warm, shady corner. Those species that need extra light at all times include Thunia, Dendrobium, Catasetum, Cycnoches, Mormodes, Cyrtopodium, Arundina, Grammatophyllum, Ipsea, *Lælia acuminata*, Schomburgkia, Lissochilus, Renanthera coccinea, the terete-leaved Vandas, &c., while those that need shade are Phalænopsis, Saccolabium, Aërides, Angræcum, Renanthera Lowii, Cypripedium, Cirrhopetalum, Bulbophyllum, &c. As previously mentioned, to suit in the matter of shading, ventilation, temperature, atmospheric moisture, &c., of so many species and varieties in one house is a matter of considerable difficulty, but a great measure of success can be attained by careful study, and by selecting special positions for certain plants. Much information can also be gained by visiting other collections, and noting well the positions the best grown plants occupy. The inmates of the Mexican division, as *Lælia anceps*, *L. autumnalis*, *L. Gouldiana*, *L. Jongheana*, *Epidendrum radicans*, *E. macrochilum*, *Odontoglossum citrosmum*, and the Barkerias, will need but very little shade, and then only for a few hours during the middle of the day when the sun would be shining directly on the plants.

All enthusiastic Orchid growers will certainly derive a considerable amount of pleasure and interest by looking through their Orchid collections during this month, and will observe how quickly a number of different species have responded to the increase of light and sun-heat. Many young breaks will have commenced to grow, new roots are pushing rapidly through the soil, and fresh flower spikes appear every day. The growing season for the majority of the plants has begun, and conditions essential for their healthy development must be regularly and systematically carried out.

CALANTHES.—Among the numerous plants that are commencing to

grow and need immediate attention are the *vestita* and *Veitchii* section of the deciduous *Calanthes*, which still hold a prominent position as decorative objects, either in the form of plants or cut blooms. These plants should now be repotted, but previous to that operation each plant should be thoroughly overhauled. Turn them out of their pots, remove every particle of soil, and closely examine each pseudobulb for the presence of scale insects and mealy bug, which may often be found clustered at the base of the growths; if such work be neglected these pests are sure to give trouble all through the growing season. While cleansing the pseudobulbs take care not to rub or injure the eyes or young growths at the base, at the same time cut off the dead roots to within one inch, to form a support that will help to keep the plants steady until the new roots have a firm hold of the compost.

As regards potting, the usual practice is to plant the largest sized pseudobulbs singly into 5 or 6-inch pots, but if house room is limited, or where a quantity of cut bloom is required, five or six of the moderate-sized bulbs, or three or four larger ones may be potted in 7-inch pots. Perfect drainage is essential; the pots should be about half-filled with clean crocks, covered with a thin layer of fresh turfy loam or rough sphagnum moss. The soil should consist of half turfy yellow loam, one-fourth chopped *osmunda* fibre, one-fourth dry cow dung or well-decayed leaf mould, with a moderate quantity of chopped sphagnum moss, small crocks, and coarse silver sand. These materials should be well mixed together. When repotting the plants, press the compost with moderate firmness around the base of each pseudobulb, and keep the soil at least half an inch below the rim of the pot, so as to ensure good waterings, and to allow sufficient space for a top-dressing of turfy loam when the plants have become thoroughly established and a number of new roots appear on the surface of the compost. This additional soil will at that time be very helpful to them.

For several weeks after repotting is completed the plants will require little or no water, unless some of the stronger growths, or those that started earlier than others, make unexpected headway. Keep their surroundings moderately moist by damping between their pots occasionally. If the plants are stood upon dry open wooden stages a damping twice each day will be needful, but if placed upon a close damp bottom two or three times a week will be sufficient. This treatment should be carried out until the new roots are seen pushing through the soil, then, by slightly sprinkling the soil with tepid rain water from a fine syringe, the roots will soon lay hold of the sides of the pot, and by that time the growths will have made considerable progress, and abundance of water will be required.

To increase the stock of any particular variety, some of the old back bulbs may be removed, inserting them thickly into pots filled with

sphagnum moss, when they will soon commence to grow, and may then be repotted and treated as advised for the older examples. These Orchids require the very lightest and best position available in the hottest house, but during the earlier stages of growth, and until the plants are well established, the young foliage, when unfolding, is very tender, and should not be exposed to strong sunshine. In houses having a southern aspect it may be difficult to shade these *Calanthes* without shading other plants that need more sunshine. To meet the difficulty, the roof glass immediately over the *Calanthes* may be stippled as lightly as possible, or a thin piece of tiffany tacked over them.

Several varieties of the *C. Regnieri* section are now in bloom, and as soon as the spikes are cut these plants, too, may be repotted. Young seedlings should also be repotted, placing five or six of the small pseudobulbs around the rim of the smallest sized pots, and then suspending them near to the roof glass of a warm moist propagating house.

The rare *Eulophia guineensis* may be treated exactly as the *Calanthes* as regards potting, watering, and resting, but it does not, while growing, require such a light position. When grown well, this *Eulophia* is a beautiful plant, producing, during autumn, strong spikes of large rose-lipped flowers, which last long in perfection.

CATASETUM, CYCNOCHES AND MORMODES.—As stated in some of the earlier volumes of the *Orchid Review*, few groups of plants produce such remarkable and interesting flowers as these, their quaint distinctiveness forming alone sufficient reason to induce their extended cultivation. After a long decided winter rest these Orchids are now commencing to grow, and must therefore be no longer kept under resting treatment. Immediately young growths appear at the base of the pseudobulbs, shake the plants out of the old compost, cut away all dead roots and decayed parts, and repot them. The most suitable receptacle is the ordinary flower pot, with three holes just under the rim, and copper wire handles, about a foot or eighteen inches in length, these being convenient for hanging the plants close to the roof glass. Over-potting must be strictly guarded against, but the most vigorous and stronger-rooting species will need rather large pots. Plenty of drainage materials are essential, and for the compost use chopped osmunda fibre, which should be firmly packed around the base of the pseudobulbs. Suspend the plants on the lightest side of the hottest house, and, as regards watering, &c., treat them exactly as advised for the deciduous *Calanthes*. From time to time many of these wonderful plants have been imported, but after blooming for a year or two have become exhausted, and in the majority of cases has disappeared. One of the principal details in the successful cultivation of these plants is to grow them on as quickly as possible, so that the new pseudobulbs may be

completed early in the season, to allow plenty of time for exposing them to full sunshine in late summer and early autumn, in order to fully ripen and consolidate the newly-made bulbs.

DENDROBIUMS.—The different species of *Dendrobium*, and their numerous distinct hybrids, have, in some collections, formed a prominent feature during the past two months, but the majority are now going out of bloom and developing their new growths freely. As the plants quickly emit new roots when the growths are a few inches high, those that need repotting should at once be attended to. When repotting well-established plants, root disturbance should be avoided as much as possible. Plants that have filled their pots with roots may be difficult to turn out without causing injury, and in such cases break the old pot, and if the soil is decayed, pick out as much of it as is practicable, but if it is in good condition do not disturb it, merely placing the plant into a larger-sized pot. Plants which are unhealthy and have deteriorated from any cause should be turned out of the pots, have all decayed roots cut away, and placed in pots as small as possible. *Dendrobiums* root freely in chopped *osmunda* fibre, but only an inch or two of the compost is necessary.

For the next few weeks after repotting keep the plants rather on the dry side, but as soon as the new breaks send forth roots water more frequently. Such strong-growing varieties as *D. nobile*, *Ainsworthii*, *A. splendidissimum*, *Artemis*, *Lady Colman*, *Dominianum*, *Apollo*, *Othello*, *Melpomene*, *Wiganiae*, *chessingtonense*, the various *D. melanodiscus* hybrids, &c., do thoroughly well in pots, provided they have a well-drained open compost to root in, but those with pendulous stems, as *D. primulinum*, *cretaceum*, *crepidatum*, *lituiflorum*, *Wardianum*, *crassinode*, *superbum*, &c., may be placed in shallow hanging pans. These pans are preferable to teak-wood baskets, because the plants are more readily attended to when they need a larger receptacle. These *Dendrobes* should be grown in the warmest house, with an abundance of light at all times. It may not be generally known, but many of these *Dendrobes*, especially those of the *D. nobile* type, will grow, rest, and bloom quite as profusely in a Vinery as they will under special treatment in the East Indian division.

CÆLOGYNE CRISTATA.—This useful species has always been a general favourite, owing principally to its vigorous constitution and easy culture, thriving well in almost any house where an intermediate temperature is maintained. Now is the best time to repot any overgrown specimens, or to break up those that may have got into an unhealthy condition, remaking them up into smaller plants as desired. Unless repotting is absolutely necessary, do not disturb them in any way, but rather, if in good health, allow them to remain as they are. In repotting those that require it, use good fibrous loam, chopped *osmunda* fibre, and sphagnum moss, in equal

proportions, with plenty of drainage. Repotted plants, especially divided pieces, frequently shrivel a little, but they should not be deluged with water with the idea of keeping them plump, it being preferable to lightly spray them overhead occasionally till root action commences, and when well rooted into the compost the plants delight in abundance of water each time the soil becomes fairly dry. Until the roots have made considerable progress, and the pseudobulbs have regained their plumpness the plants should be well shaded from strong sunshine.

ODONTOGLOSSUMS.—The early part of April is a suitable time to afford more root room to such plants as are not flowering, but none should be disturbed unless repotting is absolutely necessary. Those having sufficient root room should not be repotted before the autumn. Plants that have their new growths coming over the edge of the pots may be turned out of their receptacles, all useless back bulbs removed, and as much of the back part of the soil taken away as possible. The material for repotting should consist of a mixture of osmunda fibre, Ai fibre, and sphagnum moss, in equal parts, with plenty of small crocks added. The pots should be well drained, for although *Odontoglossums* need plenty of water whilst growing, a stagnant soil is injurious to them. After repotting, afford water with great care, for any excess of moisture at this stage will cause the old roots to perish and the pseudobulbs to shrivel. Plants which have recently flowered should be afforded but little water at the root; if kept too wet there will be weak premature growths.



ONCIDIUM TENUE.—An interesting *Oncidium* which was exhibited at the R.H.S. meeting held on March 2nd, by J. Gurney Fowler, Esq., Brackenhurst, Pembury (gr. Mr. Davis), proves to be the rare *O. tenue*, a species which flowered in the garden of the Horticultural Society of London, in September, 1847, when it was figured and described by Lindley (*Journ. Hort. Soc.*, iii. pp. 76, 77, with fig.). It is said to have been received through Mr. Hartweg from Guatemala. It belongs to Lindley's group *Pentapetala Plurituberculata*, and bears a general resemblance to *O. suave*, Lindl., from which it is readily distinguished by its acutely triangular column wings. The sepals and petals are brown, with a little yellow at the apex and on the undulate margin, while the lip is yellow, with a brown area in front of the crest, which latter is characterised by its very small teeth. It may be added that the plant subsequently described and figured as *O. tenue* var. *grandiflorum* (Lindl., *l.c.*, vii. p. 271, with fig.) was afterwards made a distinct species under the name of *O. delumbe* (Lindl. *Fol. Orch.*, *Oncid.*, p. 48). It also is a native of Guatemala, and is rarely seen in cultivation. Several other species of this group are still very imperfectly known.—R. A. ROLFE.

 DENDROBIUM DEVONIANUM.

THIS beautiful Dendrobium does not appear to have been utilised by the hybridist up to the present, which is not a little remarkable considering its distinctive and free-flowering character. It blooms later

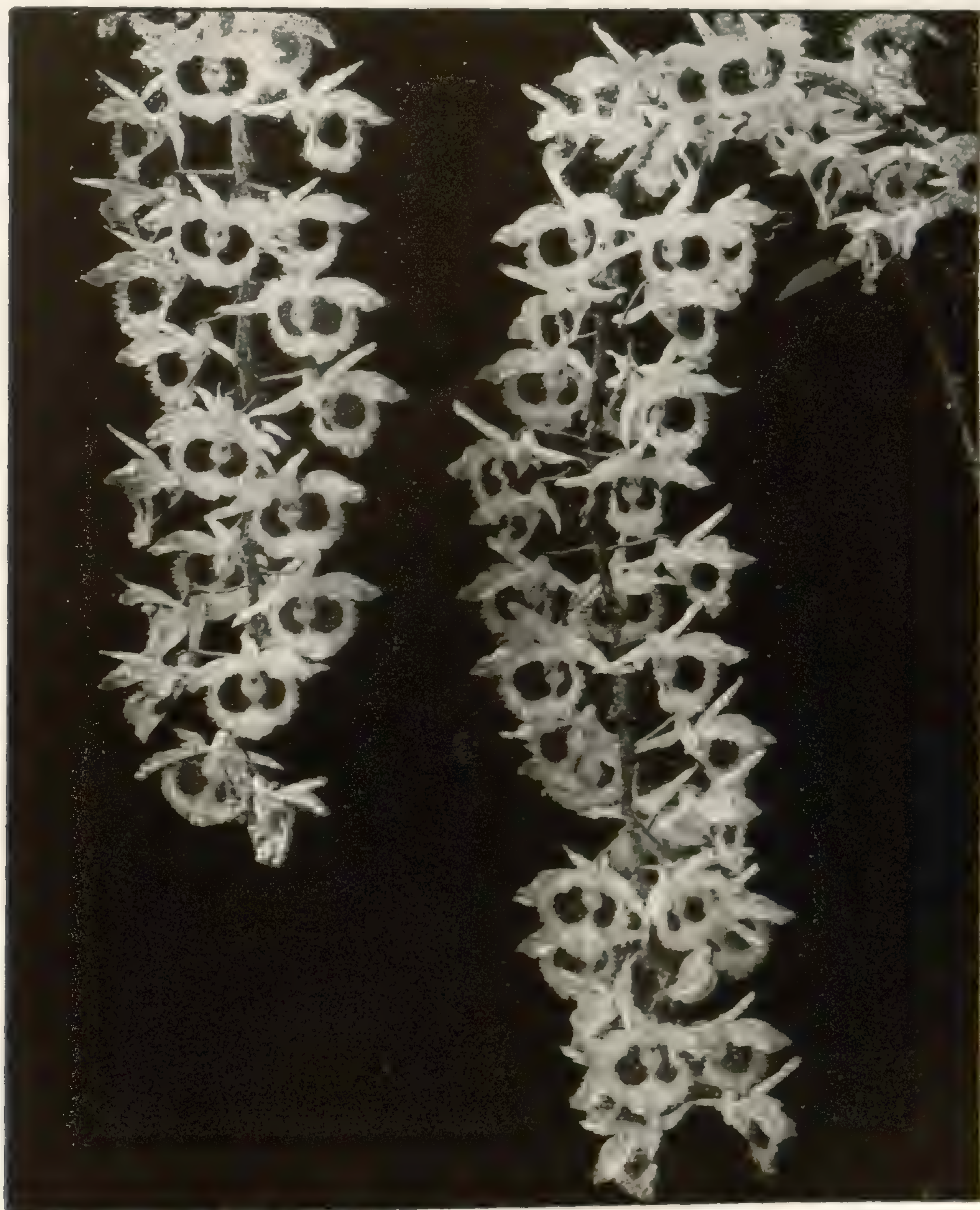


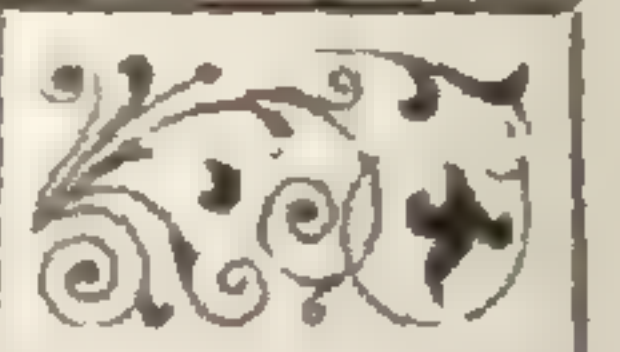
Fig. 10. DENDROBIUM DEVONIANUM.

than most of its allies, namely, in May and June, but if its broad, beautifully fringed lip, with the pair of orange blotches, could be combined with the robust habit of the hybrids of the nobile group something interesting should result. The species was discovered in the Khasia Hills by Gibson, and sent to Chatsworth in 1837, where it bloomed in the

following spring. It was figured in *Paxton's Magazine of Botany* (xvi. p. 169), being dedicated to the Duke of Devonshire. The plant here figured flowered in the collection of Dr. A. W. Hoisholt, Stockton, California. The variety *candidulum* is a rare and beautiful albino of the species.



ORCHIDS IN BRISBANE.



AN article entitled "Orchids in Brisbane," by Queenslander, appears in *Home and Garden Beautiful* for November 1st, 1914, accompanied by figures of *Cattleya Gaskelliana* and *Læliocattleya Canhamiana alba*. The writer, who alludes to the fact that climatic conditions go far to assist the cultivator, remarks:—

At the invitation of Mr. O. Bartels, I was accorded the privilege of viewing one of the largest and finest collections of Orchids in the Commonwealth. For some years past, Mr. Bartels' hobby has been Orchid collecting, and he has now accumulated more than four thousand plants. These comprise *Cattleyas*, *Cypripediums*, *Dendrobiums*, *Lælias*, *Phalænopsis*, *Cymbidiums*, &c. The whole of this collection are all potted up in specially prepared fibre imported from England, and are housed in a large glass-house which is kept at a uniform temperature. In addition to this, two bush-houses have been recently enlarged to accommodate the ever-growing collection.

The plants come from all parts of the world—Brazil and other parts of South America contribute largely; then come India, Java, New Guinea, and North Queensland; a few being imported from England.

My visit, with a few other friends, was made during the evening, and Mr. Bartels has the glass-house beautifully lit with incandescent lights, as he found his week-ends too fully occupied in showing visitors through, and he could not devote the attention in the daytime that this large collection required. At the present time most of the Orchids are out in flower, some of the flowering stems measuring fully three feet long. On entering the glass-house, the display of blooms is simply magnificent, a wealth of colour that is almost indescribable.

Mr. Bartels, who is a business man in Brisbane, has a delightful home at Mayne, one of our suburbs, and it is a matter for wonder that he finds time to bring these beautiful plants to such a state of perfection.

A cutting from the *Brisbane Courier* remarks on the fine display of *Dendrobium nobile* in the collection. "There are many hundreds of plants out in full bloom, and it is doubtful if there is another display like it in Australia." There is also a fine show of *Phalænopsis Schilleriana*, *Sanderiana*, and *Stuartiana*.

 SOCIETIES.

ROYAL HORTICULTURAL.

A MEETING was held at the Royal Horticultural Hall, Vincent Square, Westminster, on March 2nd, when there was a moderate supply of Orchids, and the awards consisted of four medals, one First-class Certificate, and one Award of Merit.

At the afternoon meeting interesting addresses were given by Dr. C. F. Fothergill on Pressing Flowers to Retain their Colours, and by Col. Rawson on Colour Changes in Flowers by the Removal of Sunlight.

Orchid Committee present: J. Gurney Fowler, Esq. (in the Chair), Messrs. J. O'Brien (hon. sec.), Gurney Wilson, J. Wilson Potter, R. A. Rolfe, F. Sander, R. G. Thwaites, P. Ralli, F. J. Hanbury, T. Armstrong, F. M. Ogilvie, C. H. Curtis, W. Cobb, J. Charlesworth, J. Cypher, W. H. Hatcher, J. E. Shill, W. P. Bound, G. Hunter, W. H. White, A. Dye, S. W. Flory, W. Bolton, R. Brooman White, C. Cookson, and Sir Harry J. Veitch.

J. Gurney Fowler, Esq., Brackenhurst, Pembury (gr. Mr. Davis), sent a plant of *Cattleya Trianæ* Griselda, bearing two spikes of flowers, with pale lavender sepals and petals, the front of the lip violet-mauve, and the disc deep yellow.

F. J. Hanbury, Esq., Brockhurst, East Grinstead (gr. Mr. Matthews), sent *Dendrobium chessingtonense* Hanbury's var., *D. Miss F. E. King* (*Artemis* × *nobile nobilius*), and a good form of *D. Rubens*.

The Rev. H. G. Munro, Woodlands, Enfield (gr. Mr. Pottinger), sent a fine specimen of *Phaius Blumei* bearing several spikes. It had been imported from Assam.

Baron Bruno Schröder, The Dell, Englefield Green (gr. Mr. Shill), sent finely developed spikes of *Cymbidium Pauwelsii*, with some twenty-five to thirty flowers.

Messrs. Cypher & Sons, Cheltenham, staged a bright little group, containing some good white *Lælia anceps*, *Cirrhopetalum picturatum* with four spikes, *Cymbidium Butterfly* with two spikes, *C. Gottianum*, *Calanthes*, *Chondrorhyncha Chestertonii*, *Dendrobium nobile virginale*, *Masdevallia gargantua*, *Aërides Vandarum*, *Miltonia Bleuana*, *Ada aurantiaca*, *Cypripedium Rossetti*, and others (Silver Banksian Medal).

Messrs. Stuart Low & Co., Jarvisbrook, staged a good group, including some well-flowered *Dendrobium Wardianum* and *D. nobile*, *D. n. virginale*, *Cattleya Percivaliana alba* Little Gem, and some good forms of *C. Trianæ*, *Oncidium Cavendishianum* and *splendidum*, *Saccolabium bellinum*,

Brassocatlælia Cooksonii, *Brassocattleya Mariæ*, *Odontioda St.-Fuscien*, etc. (Silver Banksian Medal).

Messrs. J. & A. McBean, Cooksbridge, staged a choice group, including *Odontioda Bradshawiæ* and a fine *O. Charlesworthii*, *Oncidioda Cooksoniæ*, *Odontoglossum triumphosum* with three spikes, some good *O. crispum* and others, *Læliocattleya Myra*, L.-c. *Chavica* (L.-c. *Fascinator* × *C. Empress Frederick*), and a number of *Cypripediums*, with some good examples of *Lælia anceps Schroederiana*, *Cymbidium Gottianum*, *C. Alexanderi* and var. *roseum* in the centre (Silver Banksian Medal).

Messrs. Sander & Sons, St. Albans, staged a good group, including several forms of *Cattleya Trianæ*, noteworthy among them being *C. T. plumosa*, and the blush white *C. T. Felicity*, *Miltonia Warscewiczii*, *Angræcum sesquipedale*, *Masdevallia Schroederiana*, *Cymbidium insigne* and *Pauwelsii*, *Læliocattleya Cora*, *Cypripedium Black-Watch* (*Curtisii* × *W. R. Lee*), *C. insigne Sanderæ*, and others, with a row of *Trichopilia suavis* in front (Silver Banksian Medal).

Messrs. Flory & Black, Slough, showed *Soprocattleya Atreus*, a fine *Sophrontis grandiflora*, *Læliocattleya flammea* (*highburiensis* × *Haroldiana*), with purple-crimson flowers, and *Cypripedium Peter* (*Thompsonianum* × *Countess of Carnarvon*), having a claret-purple dorsal sepal edged with white.

Messrs. Hassall & Co., Southgate, showed a good *Cymbidium grandiflorum*, *Miltonia Bleuana grandiflora*, and a dark *Odontioda Zephyr*.

FIRST-CLASS CERTIFICATE.

BRASSOCATTLEYA DIGBYANO-SCHRÖDERÆ SHRUBBERRY VAR.—A large and very beautiful white variety, with the disc of the well fringed lip light yellow. Exhibited by F. M. Ogilvie, Esq., The Shrubbery, Oxford (gr. Mr. Balmforth).

AWARD OF MERIT.

CATTLEYA OLYMPUS (Octave Doin × *Warscewiczii*).—A large and handsome hybrid, most like the former in general character. The sepals and petals are tinged with rose, and the lip rosy-crimson in front, with a pair of yellow eyes in the throat, and some yellow lines at the base. Exhibited by Messrs. Flory & Black.

At the meeting held on March 16th the Orchid exhibits were rather more numerous, and the awards consisted of six medals and two Awards of Merit.

Orchid Committee present: J. Gurney Fowler, Esq. (in the Chair), J. O'Brien (hon. sec.), Sir Harry J. Veitch, Sir Jeremiah Colman, Bart., J. Wilson Potter, F. Sander, R. G. Thwaites, F. J. Hanbury, Pantia Ralli, R. A. Rolfe, W. Cobb, J. Charlesworth, J. Cypher, W. P. Bound, H. G.

Alexander, A. Dye, W. H. White, C. J. Lucas, W. Bolton, Clive Cookson, Gurney Wilson, and R. Brooman White.

J. Gurney Fowler, Esq., Brackenhurst, Pembury (gr. Mr. Davis), showed *Odontoglossum Amethyst Glebelands* var., bearing a fine panicle of seventeen richly-coloured flowers.

G. W. Bird, Esq., The Manor House, West Wickham (gr. Mr. Redden), sent *Odontioda Sultan* (*Oda. Charlesworthii* × *Odm. spectabile*), with dark claret-brown sepals and petals, and the lip yellow with a large ruby-red blotch in front of the crest, *O. Gladys* (*Oda. Bradshawiæ* × *Odm. Pescatorei*), well blotched with red on a light yellow ground, and the margin rose, *Odontoglossum eximium Manor House* var., a rich violet purple form with a broad white margin, and a spotted form of *O. crispum*.

Sir Jeremiah Colman, Bart., Gatton Park, Reigate (gr. Mr. Collier), sent *Odontioda Lady Colman* (*C. Noetzliana* × *O. Queen of Gatton*), with deep red flowers of good shape, an interesting scarlet hybrid from *Cochlioda Noetzliana* and *Odontioda Bradshawiæ*, and a plant of *Odontoglossum Japonais* with a spike of twenty-two flowers.

Mrs. Norman Cookson, Oakwood, Wylam (gr. Mr. H. J. Chapman), sent a plant of *Odontioda Sybil* bearing a raceme of ten claret-purple flowers, and a good blotched *Odontoglossum*.

C. J. Lucas, Esq., Warnham Court, Horsham, sent *Odontoglossum armainvillierense* Eric, bearing a large panicle of richly-coloured flowers.

Pantia Ralli, Esq., Ashted Park, Surrey (gr. Mr. Farnes), sent *Odontoglossum Farnesii* (*Crawshayanum* × *Rolfeæ*), a promising seedling with dark chocolate brown sepals and petals, and the lip white in front and deep claret red behind.

R. G. Thwaites, Esq., Chessington, Streatham (gr. Mr. Hannington), sent *Odontoglossum Edna*, a pretty *O. Rossii* cross bearing a spike of five rosy flowers, with brown blotches on the sepals, and a pretty blush white hybrid between *Brassocattleya Digbyano-Schröderæ* and *C. Schröderæ*.

Messrs. Charlesworth & Co., Haywards Heath, staged a choice group of well-grown plants, including two *Angræcum citratum* with nine and thirteen spikes, *Zygocolax Charlesworthii*, the beautiful *Odontonia Magali-Sander* var. *xanthotes*, *Cœlogyne Sanderæ* with five spikes, *Miltonia Bleuana*, *Zygopetalum Perrenoudii*, *Brassocattleya Veitchii* *Queen Alexandra*, *Læliocattleya Eurypides* with four handsome yellow flowers, plants of *Odontioda Joan* showing much variation, and some good *Odontoglossums* (Silver Flora Medal).

Messrs. Sander & Sons, St. Albans, staged a fine group, including examples of *Cymbidium insigne* and *C. Gottianum*, some well-flowered *Dendrobium Wardianum*, the rare *D. Harveyanum* with fringed petals, *Trichopilia Backhouseana* with ten flowers, the neat little *Sophronitis*

violacea, *Cœlogyne Sanderæ*, *Lælia Jongheana*, *Maxillaria lepidota*, and various other interesting things (Silver Flora Medal).

Messrs. Hassall & Co., Southgate, staged a choice group, including five well-grown examples of *Angræcum sesquipedale*, examples of *Odontioda Zephyr* and *Bradshawiæ*, *Cattleya Schröderæ*, and *Cymbidium Pauwelsii* (Silver Banksian Medal).

Messrs. Stuart Low & Co., Jarvisbrook, Sussex, staged a very pretty group, including a fine *Cattleya Enid* with four flowers, examples of *C. Octave-Doin* and *Schröderæ*, *Odontioda Sanderæ* and *Bohnhofiæ*, *Oncidium ampliatus*, *Dendrobium nobile virginale* and *Findlayanum*, *Sophronitis grandiflora*, and others (Silver Banksian Medal).

Messrs. J. & A. McBean, Cooksbridge, staged a choice group, including good examples of *Cymbidium Gottianum*, *C. Alexanderi* and *C. A. roseum*, *C. Veitchii* var. *concolor* (*eburneum* × *Lowianum concolor*) with sulphur yellow flowers, *Brassocattleya Lemanniæ*, *Odontioda Bohnhofiæ* and *Devosiana*, *Odontoglossum triumphosum*, *Lambeauianum*, *Lawrenceanum*, and *crispum*, *Cypripedium Butterfly* (*Thompsonianum* × *memoria Jerninghamiæ*), having large flowers well suffused with yellow, and with a dark band on the dorsal sepal (Silver Banksian Medal).

Mr. H. Dixon, Spencer Park Nursery, Wandsworth, staged a small group, including a fine example of *Odontoglossum Ærstedii* with over a dozen flowers, *O. Thompsonianum*, a fine *O. armainvillierense*, and a few others, *Cymbidium Lowianum*, *Miltonia Bleuana*, *Sophronitis grandiflora*, *Brassocattleya Veitchii* *Queen Alexandra*, &c. (Bronze Banksian Medal).

Messrs. Flory & Black, Slough, sent a good form of *Cattleya Enid*, *Odontoglossum crispum xanthotes*, *Odontioda Charlesworthii*, and another brilliantly-coloured hybrid.

AWARDS OF MERIT.

BRASSOCATTLEYA CLIFTONII VAR. **SIR JOHN FRENCH** (*B.-c. Veitchii* × *C. Trianæ*).—A large and beautiful variety, having rose pink sepals and petals, the latter being exceptionally broad, and the lip well expanded, and with a very large yellow area on the disc. Exhibited by Messrs. Stuart Low & Co.

LYCASTE JANETÆ (*Skinneri* × *Rossiana*).—A beautifully grown plant, bearing eight fine flowers, with cream white sepals and petals, densely spotted with rose below, and the lip yellow with a claret-coloured base. Exhibited by Messrs. Sander & Sons.

A third meeting was held on March 30th, when there was a very fine display of Orchids, and the awards consisted of one Gold and six other Medals, two First-class Certificates, two Cultural Commendations, and one Certificate of Appreciation.

Orchid Committee present: J. Gurney Fowler, Esq. (in the Chair), Messrs. J. O'Brien (hon. sec.), R. Brooman White, W. Bolton, Gurney Wilson, C. J. Lucas, S. W. Flory, W. H. White, A. Dye, J. E. Shill, W. H. Hatcher, J. Cypher, J. Charlesworth, W. Cobb, T. Armstrong, F. J. Hanbury, F. M. Ogilvie, Pantia Ralli, R. G. Thwaites, F. Sander, R. A. Rolfe, J. Wilson Potter, Sir Harry J. Veitch, and Sir Jeremiah Colman, Bart.

J. Gurney Fowler, Esq., Brackenhurst, Pembury (gr. Mr. Davis), staged a magnificent group of over 300 plants, which filled the stage along the side of the Hall, and to which the Society's Gold Medal was awarded. It consisted largely of *Dendrobiums*, which were arranged on the wall behind, producing a very graceful effect. *D. nobile* was represented by the leading varieties, including *Cooksonianum*, *Ballianum*, *elegans*, and a lot of the chaste var. *virginale*, with the hybrids *D. Ashworthii*, *Wiganiae Thwaitesiae*, *Rubens*, *Cybele*, *Juno*, *Sybil*, and many others, and one very promising hybrid from *D. nobile nobilius* and *D. chessingtonense* (both also included) had yellow sepals and petals flushed with purple, and the lip of a peculiar light claret margined with yellow. On the stage in front were forms of *Odontoglossum crispum*, *Ossulstonii*, and numerous others, *Odontiodas*, *Cymbidium Alexanderi roseum*, a handsome *Brassocattleya Cliftonii*, the flame-coloured *Brassocatlaelia Fowleri*, forms of *Cattleya Schröderæ*, *Cypripediums*, *Læliocattleyas*, &c.

Sir Jeremiah Colman, Bart., Gatton Park, Reigate, sent a group of several plants of *Soprocattleya Marriottiana*, showing much variation in colour, *Soprocatlælia Thalia*, and two S.-c.-l. *Mary*; also an interesting selection of cut spikes of *Dendrobiums*, including 28 named varieties.

G. W. Bird, Esq., Manor House, West Wickham (gr. Mr. Redden), sent *Odontioda Gladys* (*Odm. Pescatorei* × *Oda. Bradshawiæ*), a very beautiful thing, having two distinct zones of scarlet round the petals, with a few central spots, and the lip of good shape and colour.

Sir F. W. Moore, Royal Botanic Gardens, Glasnevin, sent three spikes of the handsome *Bulbophyllum dichromum* (Rolfe), having deep golden yellow flowers, and a claret-coloured lip.

F. M. Ogilvie, Esq., The Shrubbery, Oxford (gr. Mr. Balmforth), sent a fine plant of the handsome *Brassocattleya Cliftonii magnifica*.

Baron Bruno Schröder, The Dell, Englefield Green (gr. Mr. Shill), sent *Odontioda Cardinal* (*Oda. Vuylstekeæ* × *Odm. spectabile*) bearing a panicle of eighteen large and richly-coloured flowers, and a good plant of *Odontoglossum Pescatorei Veitchianum*.

Messrs. Charlesworth & Co., Haywards Heath, staged a group of finely-grown *Odontoglossums* and allies, including beautiful examples of *O. crispum xanthotes*, *O. Jasper*, *O. armainvillierense xanthotes*,

O. Thompsonianum, and *O. Dora*, some choice forms of *Miltonia Bleuana*, two brilliant examples of *Oncidioda Cooksoniæ*, a fine *Odontonia Longowoyi*, and numerous brilliant *Odontiodas*, among which forms of *Bradshawiæ*, *Latona*, *Madeline*, *Joan*, and *Brewii* were noteworthy (Silver Flora Medal).

Messrs. Sander & Sons, St. Albans, staged a fine group, the back being made up of well-flowered *Dendrobium Wardianum*, including the variety *album*, while in the front were examples of *Trichopilia suavis*, *Miltonia St.-Andre*, *Dendrobium aggregatum*, *Vanda cristata*, *Ornithidium coccineum*, and *Maxillaria leptosepala*. We noted also *Dendrobium Harveyanum* with its deeply fringed petals, *Renanthera Imschootiana*, the



Fig. II. *DENDROBIUM HARVEYANUM*.

fine *Cœlogyne Lawrenceana*, *Cymbidium insigne*, *Gottianum*, and *Butterfly*, some good *Læliocattleyas*, *Odontoglossum Lambeauianum*, *Thompsonianum*, &c., with some brilliant *Odontiodas* (Silver Flora Medal).

Messrs. Cypher & Sons, Cheltenham, staged a good group, including *Dendrobium Luna*, *D. Cybele*, *D. Thwaitesii*, *D. superbum Huttonii*, *D. nobile virginale*, and other very good forms of *D. nobile*, a fine *Cirrhopetalum picturatum*, two well-flowered *Sarcochilus Fitzgeraldii*, the brilliant *Sophronitis grandiflora*, *Cymbidium Gottianum* and *Butterfly*, *Epiphronitis Veitchii*, *Lycaste Skinneri*, a well-flowered *Cypripedium Rossetti*, *Epidendrum xanthinum*, and *E. xanthinum* × *Boundii* (Silver Banksian Medal).

Mr. H. Dixon, Wandsworth, staged a good group, including a well-flowered *Odontoglossum Ærstedii* and other *Odontoglossums*, *Dendrobium Brymerianum* and *D. nobile virginale*, *Odontioda Cupid* and *Bradshawiæ*, *Cattleya Schroederæ*, and a few *Cypripediums* (Silver Banksian Medal).

Messrs. Stuart Low & Co., Jarvisbrook, staged a good group, including beautiful examples of *Cattleya Schroederæ* and *Mendelii*, *C. Seligeri* (*Enid* × *Whitei*), several well-bloomed *Dendrobium Jamesianum*, *D. crassinode album* and *D. Brymerianum*, *Oncidium concolor*, the brilliant *Sophronitis grandiflora*, *Miltonia Bleuana*, *Odontioda Devosiana*, and a few *Læliocattleyas* (Silver Banksian Medal).

Messrs. J. & A. McBean, Cooksbridge, staged a choice group, including examples of *Cymbidium Gottianum*, *C. Alexanderi*, and *C. Veitchii concolor*, *Odontioda Charlesworthii*, *Bradshawiæ*, and *Lambeauiana*, *Oncidioda Cooksoniæ*, *Odontoglossum Groganii*, *Jasper*, and *eximium*, a fine hybrid from *Læliocattleya callistoglossa* × *Cattleya Schroederæ*, and *Cypripedium LEEANUM giganteum* × *C. Winnianum*, with yellow-green ground, and a dark band on the dorsal sepal (Silver Banksian Medal).

Messrs. Flory & Black, Orchid Nursery, Slough, staged *Disa sagittalis* with seven spikes, the rare *Pleurothallis hemirhoda*, *Cypripedium Peteri* (*Thompsonianum* × *Dicksonianum*), *Odontioda Charlesworthii*, and a pretty hybrid from *Odontioda chelseensis* × *Odontoglossum crispum*, with rosy purple flowers.

FIRST-CLASS CERTIFICATE.

LÆLIOCATTLEYA J. F. BIRKBECK FOWLER'S VAR. (*C. Mendelii* × *L.-c. Henry Greenwood*).—A robust and handsome hybrid, bearing three exceptionally large flowers, most like the *Cattleya* parent in shape, and having blush white sepals and petals, and the front of the lip rose-purple, with two yellow eyes in the throat. Exhibited by J. Gurney Fowler, Esq.

ODONTOGLOSSUM MARS (parentage unrecorded).—A fine hybrid bearing a panicle of flowers, having dark red-brown sepals and petals margined with white, and the apex of the lip white. Shown by J. Gurney Fowler, Esq.

CULTURAL COMMENDATIONS.

DENDROBIUM THWAITESIÆ VEITCH'S VAR.—To Mr. W. Balmforth, gr. to F. M. Ogilvie, Esq., The Shrubbery, Oxford, for a group of about thirty well-grown plants, having deep orange-yellow flowers with a dark maroon disc to the lip.

ODONTOGLOSSUM CRISPO-HARRYANUM.—To Mr. J. E. Shill, gr. to Baron Bruno Schröder, for a splendidly-grown plant, bearing three strong spikes, the best with sixteen flowers.

CERTIFICATE OF APPRECIATION.

ODONTIODA ARMSTRONGII VAR. PEERLESS (*Oda. Vuylstekeæ* × *Odm. Armstrongiæ*).—A beautiful hybrid, bearing its first, finely-shaped flower,

which has dark rosy claret sepals and petals, shading off to lilac at the undulate margin, and the lip pandurate, very dark at the base and lilac in front. Exhibited by Messrs. Armstrong & Brown.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

At the meeting held at the Coal Exchange, Manchester, on March 4th, the members of Committee present were:—Rev. J. Crombleholme (in the Chair), Messrs. R. Ashworth, J. J. Bolton, J. Cypher, J. Evans, A. Hanmer, Dr. Hartley, J. Howes, J. Lupton, D. McLeod, C. Parker, W. Shackleton, H. Thorp, Z. A. Ward, and H. Arthur (Secretary).

Large Silver Medals were awarded to R. Ashworth, Esq., Newchurch (gr. Mr. Gilden), and to W. Thompson, Esq., Walton Grange (gr. Mr. Howes), for fine miscellaneous groups,

Silver Medals were awarded to Col. J. Rutherford, M.P., Blackburn (gr. M. Lupton), Messrs. Cypher & Sons, Cheltenham, Messrs. Sander & Sons, St. Albans, and to Messrs. A. J. Keeling & Sons, Bradford, for good miscellaneous groups.

Interesting exhibits were also sent by A. J. Oakshott, Esq., Birkenhead (gr. M. Findlow), S. Gratrix, Esq., Whalley Range (gr. Mr. Brown), J. Butterworth, Esq., Burnley (gr. Mr. Wilson), and Mr. D. McLeod, Chorlton-cum-Hardy.

FIRST-CLASS CERTIFICATE.

Cypripedium Daisy Barclay var. *nigrum*, a massive flower, of deep colour, with broad flat petals, from Wm. Thompson, Esq.

AWARDS OF MERIT.

Læliocattleya Lucasiana atropurpurea, and *Odontoglossum illustrissimum* W. L. Evans, from Wm. Thompson, Esq.

Odontoglossum excellens Mrs. R. Ashworth, and *Odontioda Bradshawiae* Ashlands var., from R. Ashworth, Esq.

Odontoglossum Aireworth Rosy Gem, and *O. amabile* Mrs. A. Oakshott, from A. J. Oakshott, Esq.

Odontioda West Point Beauty (*Oda. Bradshawiae* × *Odm. eximium*), from S. Gratrix, Esq.

AWARD OF APPRECIATION.

Odontoglossum maculum (*maculatum* × *aspersum*), from Wm. Thompson, Esq.

At the meeting held on March 18th, the members of Committee present were:—Z. A. Ward, Esq., (in the Chair), Messrs. R. Ashworth, J. C. Cowan, J. Cypher, A. G. Ellwood, J. Evans, A. Hanmer, Dr. Hartley, J. Howes, A. J. Keeling, J. Lupton, D. McLeod, W. J. Morgan, C. Parker, W. Shackleton, H. Thorp, G. Weatherby, and H. Arthur (Sec.).

A Large Silver-gilt Medal was awarded to O. O. Wrigley, Esq., Bury (gr. Mr. Rogers), for a very rich group, in which *Dendrobiums*, *Cypripediums*, and varieties of *Lycaste Skinneri* were particularly well represented, while the unique *Miltonia Warscewiczii xanthina* was also included.

Silver-gilt Medals were awarded to R. Ashworth, Esq., Newchurch (gr. Mr. Gilden), and to W. Thompson, Esq., Stone (gr. Mr. Howes), for very fine miscellaneous groups.

Large Silver Medals were awarded to Z. A. Ward, Esq., Northenden (gr. Mr. Weatherby), for a fine group of *Odontoglossums*, and to Col. J. Rutherford, M.P., Blackburn (gr. Mr. Lupton), for a fine miscellaneous group, including the rare *Cymbidium Parishii Sanderæ*, and a good *Lycaste Skinneri album*.

Silver Medals were awarded to Messrs. Cypher & Sons, Cheltenham, and to Messrs. Sander & Sons, St. Albans, for fine miscellaneous groups.

A Bronze Medal was awarded to F. A. Hindley, Esq., Bradford, for a small group.

Interesting exhibits were also sent by A. J. Oakshott, Esq., Bidston (gr. Mr. Findlow); S. Swift, Esq., Gathurst; Messrs. Charlesworth & Co., Haywards Heath, and Messrs. A. J. Keeling & Sons, Bradford.

FIRST-CLASS CERTIFICATES.

Odontoglossum V.C. (parentage unknown), a huge flower of good form and colour, from Z. A. Ward, Esq.

Odontoglossum illustrissimum var. *Pompeii*, a flower of good form, with the sepals and petals bright maroon margined with white, and the lip white with large maroon spots in the centre, from R. Ashworth, Esq.

AWARDS OF MERIT.

Odontoglossum illustrissimum var. *Etna*, *O. Jasper* var. *leopardinum*, *O. eximium rotundiflorum*, *Odontioda Schröderi* var. *Flamingo*, and *O. Madeline* var. *Queen Elizabeth*, from R. Ashworth, Esq.

Odontoglossum Adriem (*Adrianæ Babette* × *illustrissimum*), *O. Euryades*, *Odontioda Bradshawiæ Walton Grange* var., *Odontioda Madeline* var. *Solum* (*Oda. Charlesworthii* × *Odm. crispum Solum*), *Dendrobium* × *Thompsonii* (*nobile nobilius* × *Owenianum*), *Cattleya Schröderæ* var. *Distinction*, from W. Thompson, Esq.

Odontoglossum ardentissimum Beardwood var., from Col. J. Rutherford, M.P.

Odontoglossum amabile var. *Pink Pearl*, from A. J. Oakshott, Esq.

Odontoglossum crispum Gathurst var., from S. Swift, Esq.

Odontonia Magali-Sander var. *xanthotes* (*Miltonia Warscewiczii xanthina* × *Odontoglossum armainvillierense xanthotes*), from Messrs. Charlesworth & Co.

THE AMATEUR'S COLLECTION.

By C. ALWYN HARRISON.

THE days will now be lengthening nicely, and more ventilation can be given, as the sun will have greater power and run up the temperature. In fact, abundance of fresh air is needed by Orchids at all times to promote vigour and induce formation of healthy roots, which are the precursors of good flowers, and although it is not always possible in winter to admit air to the extent we should like, yet from now onwards it should be easily managed, especially if a little fire heat is maintained in the pipes. It is a bad practice at this season to save a fire by closing the ventilators early in the afternoons, and yet this is a common failing with many amateurs. If, however, a gentle warmth be kept in the pipes, the bottom ventilators well opened, and on favourable occasions a little air be given through the top ventilators, the plants will grow like weeds. If the weather prove sunny, damping down may be practised somewhat more thoroughly than advised last month, especially in the middle of the day.

Towards the middle of this month shading will be required for a few hours during the middle of the day, but should yet only be employed if the sun is strong. Obviously the system of shading by blinds is imperative to success, and whether constructed of thin wooden lathes or tiffany, it does not much matter. They must not, however, be made to unroll flat upon the roof glass, as this tends to keep the glass very hot, especially later in the season. The blinds should be so constructed that at least two inches of space is allowed between them and the roof glass, which will allow of a free current of air to pass between each. If any amateur has not his blinds so arranged, he should have them altered now, as it will be of untold benefit to the plants, and any horticultural builder can affix them running on T-iron runners at little cost.

The average temperatures can be higher than prescribed for last month, 60°-65° Fahr. by night and 65°-75° Fahr. by day, with sun heat, being found very suitable.

CATTLEYA TRIANÆ.—This very beautiful Orchid is now flowering in most houses, and should be in every amateur's collection. Where any plants are in sheath, it is imperative to give them good light and always sufficient water to keep the compost damp, but yet not sodden. If possible, remove any plants that are in full flower to a cooler house, where they will keep longer in beauty. After the blossoms have faded, the plants must, if they are to be expected to keep in full vigour, be placed at the coolest end of the house to rest, giving only a little water until fresh roots and leads begin to make their appearance.

Where the amateur has a great liking for Orchids of the *Cattleya* type, it will be found better to include a large percentage of hybrids, as these flower more freely and grow better under beginners' culture than the species. A good selection should always comprise the following :—

Læliocattleya *bletchleyensis*, *Canhamiana*, *callistoglossa*, *Dominiana*, *Fascinator*, *luminosa*, and *Martinetii*.

Cattleya *Enid* and *Iris*.

Brassocattleya *Maroniæ*, *heatonensis*, and *Veitchii*.

Next month I hope to describe the method of potting *Cattleyas*.

LYCASTE JANETÆ.

A FINE plant of *Lycaste Janetæ* (*Skinneri* × *Rossiana*), bearing eight flowers, was exhibited at the R.H.S. meeting held on March 16th, by Messrs. Sander & Sons, St. Albans, and received an Award of Merit. This interesting hybrid was originally raised in the collection of the late H. J. Ross, Esq., and was described in these pages in 1899 (*O.R.*, vi. p. 366). It was dedicated to Mrs. Janet Ross, who, it is interesting to note, still maintains the collection at Poggio Gherardo, Florence. The original plant had yellow flowers, more or less dotted with red at the base of the segments, and the base of the column deep red-purple. The following year three others flowered, one of which was much nearer *L. Skinneri*, the sepals and petals being dotted all over with rose (*O.R.*, viii. p. 158). In 1901 Mrs. Ross wrote: "The *Lycaste* which you did me the honour to name after me has bloomed profusely. We have twelve pots, all strong plants, out of one seed pod. Two have rose-coloured sepals and petals with light yellow lip; three are canary-yellow with dark yellow lip and a few darkish spots on the sepals near the lip; and two are apple green fading into yellow, with a yellow lip. The others have not yet bloomed" (*O.R.*, ix. p. 95). Two years later Mrs. Ross sent a photograph of a fine plant bearing no fewer than twenty-nine flowers (*O.R.*, xi. p. 63). The second parent, *L. Rossiana*, it may be remembered, also appeared in this collection, and was described at page 239 of our first volume as a yellow *Lycaste* allied to *L. cruenta*, Lindl., but differing in the details of the lip and in having some hairs on the crest. Messrs. Sander's plant had cream white sepals and petals, dotted with rose below, and the lip yellow with a claret-coloured base. By some inadvertence the plant was exhibited as *L. Janet Ross*, and has been so recorded, with the name *L. Janetæ* as a synonym (*G.C.*, 1915, i. p. 158), which is erroneous.

R.A.R.

 A BOSTON ORCHID GROWER.

THE issue of *Horticulture* for March 6th contains a portrait of Mr. J. T. Butterworth, of Framingham, Mass., who grows Orchids for the Boston market. A sincere and earnest lover of plants, Mr. Butterworth personally cares for every one of his twenty thousand Orchid plants. He was one of the first to grow Orchids in quantity for commercial use in New England. The first house on the place was built in 1848, by C. J. Power, the original owner. This was a lean-to affair against the side of a barn, which stands to-day, a fitting demonstration of the remarkable progress in greenhouse construction since that time. There are now twelve houses, most of them built since Mr. Butterworth came into possession, about sixteen years ago. He served his apprenticeship in England, came to this country in 1888, worked in Stoughton for some time, became manager for C. J. Power, and finally bought over the business.

Not only the stock, but the houses themselves are of interest. All but two are old-fashioned, with small panes, heavy, thick woodwork, and replete with encumbrances and appliances that make the modern house a veritable palace in comparison. "But," as Mr. Butterworth says, "each man is the architect of his own fortune," and with the tools in his possession, he has carved out for himself an enviable reputation for fine Orchids. In reference to interesting houses, we noted one which formerly grew roses and which in its time was the largest house in the state, built thirty-five years ago. In its present condition it runs north to south, but when first built it ran east to west, and in moving not a pane of glass was broken. Hot water is still used to heat the range.

Very little importing is done here, as Mr. Butterworth is almost a crank on efficiency and conservation. The weak-looking odds and ends accumulated in repotting from time to time are seldom thrown away. With infinite patience, and guided by the intuition acquired in life-long acquaintance with plants, all of these are nursed back to healthy, virile life. Thus very few Orchid plants are imported from South America, and through this practice some fine strains have been selected, which to-day are to be found nowhere else. A finely-grown specimen *Cattleya* is also included in the photograph.

Speaking of importing, Mr. Butterworth states that the importation of *Cattleya labiata* is slowing up rapidly, due to the thousands of plants that have been sent to this country in response to public demands. Collectors are finding good specimens exceedingly difficult to secure. In his opinion *C. Mossiæ* outclasses all other *Cattleyas* for beauty and quality, but

because of its habit of blooming in April it fails to take advantage of the mid-winter demand.

Many other things are grown besides Orchids, and a big retail business is done direct from the greenhouses, though much of the product finds an outlet in the wholesale markets in Boston.



NEW HYBRIDS.



THE following hybrids have been forwarded to us for registration :—

BRASSOCATLÆLIA FREDÄ (*Læliocattleya Elinor* × *Brassocattleya Leemaniae*).—A large and striking hybrid, with elongated buff yellow sepals and petals, and the lip neatly fringed, similar in colour, and with some reddish veining in the throat. Raised in the collection of Lieut.-Col. Sir George L. Holford, K.C.V.O., Westonbirt, Tetbury, by Mr. H. G. Alexander.

BRASSOCATLÆLIA GOLDEN-HORN (*Brassocattleya Rowena* × *Læliocattleya Goldcrest*).—A beautiful bright yellow flower, of moderate size, with a neatly-fringed lip, which is of deeper yellow in the throat. Raised in the collection of Sir George L. Holford.

BRASSOCATTLEYA GRISELDA (*Cattleya Rothschildiana* × *Brassocattleya Leemaniae*).—A very large and beautiful hybrid, with broad, light mauve-purple sepals and petals, and the well-fringed lip of similar colour, with a large amount of yellow in the throat. Raised in the collection of Sir George L. Holford.

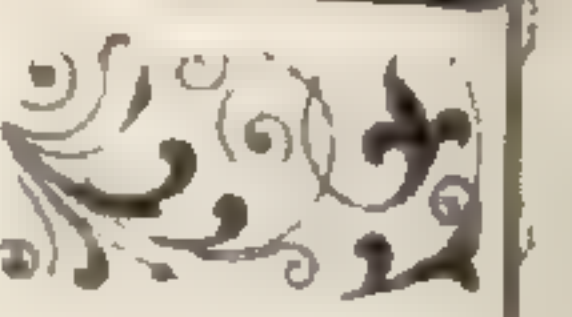
LÆLIOCATTLEYA TITANIA (*Cattleya Schröderæ* × *Læliocattleya Daffodil*).—A very neat little flower, most like a reduced *C. Schröderæ* in general character, and having broad lilac blush sepals and petals, and a very large amount of deep orange in the throat of the lip. Raised in the collection of Sir George L. Holford.

LÆLIOCATTLEYA ZARA (*Cattleya Schröderæ* × *Læliocattleya Ariel*).—A very promising hybrid, of moderate size, with flowers of good shape, the sepals and petals light mauve-purple, and the lip much darker in front, with some yellow in the throat. It is remarkable that the yellow of the pollen parent is suppressed. Raised in the collection of Sir G.L. Holford.

LÆLIOCATTLEYA EVANSIÆ (*Lælia purpurata* × *Cattleya amethystoglossa*).—A very charming hybrid, which combines well the qualities of two parents. The flowers are fairly intermediate in shape, and have blush-white sepals and petals, and a somewhat three-lobed lip, with the front lobe and apex of the side lobes rich purple. Raised in the collection of W. Evans, Esq., J.P., Knighton Lodge, Leicester, by Mr. T. Cook. It is a quite parallel hybrid to *Læliocattleya Schilleriana*, and of considerable promise.



ORCHID NOTES AND NEWS.



TWO meetings of the Royal Horticultural Society will be held at the Royal Horticultural Hall, Vincent Square, Westminster, during April, on the 13th and 27th, when the Orchid Committee will meet at the usual hour, 12 o'clock noon.

The Manchester & North of England Orchid Society will hold meetings at the Coal Exchange, Manchester, on April 1st, 15th, and 29th. The Committee meets at noon, and the exhibits are open to the inspection of members and the public from 1 to 4 p.m.

Horticulture of March 6th states that one of the exhibits that is attracting much attention at the Great Exhibition at San Francisco is that of Orchids in the Philippine Islands building, which was formally dedicated February 26th. This exhibit contains over 4,000 specimens, and is valued at about 20,000 dollars. Many of the varieties, it is said, are being shown in this country for the first time.

DESTRUCTION OF AN ORCHID COLLECTION.—We regret to learn, from the February issue of *Journal of the Société Nationale d'Horticulture de France* (p. 18) that during the bombardment of Arras the Orchid houses of M. Alfred Le Gentil were completely destroyed. They contained a fine collection, chiefly of the *Anæctochilus* group, including about 100 plants of some thirty species and varieties of the genera *Anæctochilus*, *Macodes*, *Hæmaria*, *Dossinia*, *Goodyera*, and others.

THE Highbury Orchid Collection.—The famous Orchid collection formed by the late Rt. Hon. Joseph Chamberlain, M.P., will be sold by auction on April 15th and 16th, by Messrs. Protheroe & Morris, at their Central Sale Rooms, Cheapside.



ANSWERS TO CORRESPONDENTS.



[Orchids are named and questions answered here as far as possible. Correspondents are requested to give the native country or parentage of plants sent. An ADDRESSED postcard must be sent if a reply by post is desired (abroad, reply postcards should be used). Subjects of special interest will be dealt with in the body of the work].

W.H.—We are assured by the raisers that the record, and consequently the name, is erroneous.

A.C.—*Cymbidium pumilum*, Rolfe.

M.D.—1, *Cœlogyne Huettneriana*, Rchb. f.; 2, *Cirrhopetalum gracillimum*, Rolfe.

J.H.—*Dendrobium Harveyanum*, Rchb. f. (see page 120).

Photograph received, with thanks.—W.E.E.

Received.—J.T.B.; H.G.A.; G.H.S.; F.S.

Several notes and records are unavoidably postponed.



The Orchid Review

VOL. XXIII.

MAY, 1915.

No. 269.



OUR NOTE BOOK.



A CORRESPONDENT obligingly sends us the annexed newspaper cutting, which, he thinks, is too good to be lost :—

MAD ORCHID HUNTERS.

TREASURES GIVEN AWAY LIKE CIGARETTES.

Express Correspondent,

New York, April 6th.

A wonderful story of Orchid hunters who went mad in the search for rare blossoms was told by Dr. W. E. Aughinbaugh, of New York, during his visit to the International Flower Show here.

When he saw at one of the stands some of the rare varieties of *Odontoglossi* *Cattleya cypripediæ* and *Phalænopsis*, he at once recognised specimens which were gathered in a British expedition to Venezuela about ten years ago.

The doctor went with a party to the help of the Orchid hunters.

“In shooting the rapids of the Orinoco some of the canoes upset,” said the doctor, “and the loss of these, with the loss of food supplies, drove the Englishmen and Indians insane, partly from disappointment, partly from hunger.

“They had to live on monkeys, parrots, and coconuts for days, and for long stretches in the deep jungles and swamps could get no food at all. When we found them most of them were dazed, and some were gibbering idiots.

“And through it all some of these men clung desperately to certain Orchid plants as if they were children. Some of them, on reaching Caracas, in their madness gave these rare specimens to strangers just as if they had been cigarettes.

“A few of the recipients were Americans, and they sent these rare specimens to friends in the United States.”

We seem to have heard of that Expedition before, but some of the

details are unfamiliar, and it is fortunate that the worthy doctor happened to visit the International Show, likewise the *Express* correspondent, otherwise the world might never have heard of that Venezuelan *Phalænopsis*, and perhaps one or two other surprising details. We wonder whether they will turn up at the big Show at Chelsea.

Another interesting geographical discovery is announced in the *Windsor Magazine* for March, namely, the presence of an *Odontoglossum* in Fiji, in which "the lip is pink instead of chocolate." We also learn that "until Mr. Kefford visited Vanua Levu, Orchids were unknown in Fiji," so that the visit must have been made a considerable time ago. Anyhow, it resulted in the discovery of the "*Corona Keffordii*." The story is narrated by Mr. Ralph Scott, on the authority of Mr. Kefford himself. "I caught sight," he says, "of something above my head in the branches of a *ti* tree; it was the *Corona Keffordii*, a delicate waxen thing drooping from a stalk embedded in the bark." And there are a good many more interesting details. We confess not to have yet made its acquaintance, but then "one might search the swamps for a year and then not find this one's duplicate,"—which seems not at all unlikely under the circumstances!

The February issue of the *Journal of Heredity* contains (pp. 55-56) an article by Mr. O. F. Cook, entitled "Two Classes of Hybrids," in which it is urged that the use of distinctive names for the two principle classes of hybrids would be in the interest of convenience and intelligibility. He thinks the ordinal designation, first, second, and third generation hybrids, &c., cumbersome and confusing, while the corresponding Mendelian symbols, F_1 , F_2 , F_3 , are awkward typographically and have little meaning for the general reader. Both are essentially misleading, in that they leave out of account the biological difference between the first, or F_1 , and later generations. And the matter is emphasised thus:—

"First Generation Differs Widely in Character from Second and Following Generations, and the Two Classes Should be Distinguished by More Exact Names, In Order to Avoid Confusion."

He proposes that in future the two classes shall be distinguished by the names "Conjugate" and "Perjugate" hybrids.

But what is the matter with the familiar terms, Primary and Secondary hybrids? The essential difference between the two classes has long been understood, and the term secondary is used also to designate the later generations. It is remarked that the term perjugate for this class "seems appropriate because the nuclear elements represented in the second and later generations of a hybrid may be said to have passed through con-

jugation." But conjugation is not limited to hybrids. It applies to every sexually-formed individual, whether hybrid or not. Hybrids merely represent unions between individuals that have become specifically different. It is an extension of a process which ceases as soon as the germ cells of the parents become so different that conjugation cannot take place, and we say that such species will not cross. We do not see any necessity for wrapping up a perfectly familiar process in terms of mystery. Incidentally it may be added that we get a new definition of sterile hybrids, as "hybrid conjugates that do not produce perjugates," which is going a long way round to say the same thing.

A final remark, that "Of hybrids and of hybridisation as a whole little or nothing can be said that is not erroneous or misleading," is best left without comment.

One thing at least may be said about hybrids, and that is that they are giving a great deal of trouble as regards their nomenclature, largely because of the neglect of rules laid down for the guidance of raisers and others. One of these difficulties concerns the question of specific names. The Brussels Rules started out by adopting the earlier rules, that the specific names of hybrids shall be governed by the same rules as the names of species, a system that we are glad to say is being largely followed, though with a few glaring exceptions. But any attempt to amend such names, although required by the rules, leads to a great deal of friction. Some of these irregular names, we find, are only intended to be used in the florists' sense; and under a very necessary rule—that all hybrids between the same two species shall be regarded as forms of one—should be regarded as varietal names. For example, some time ago a rather fine hybrid was raised, and of course named, but when we extended the use of the name to some later seedlings of the same parentage we received a protest that they were altogether inferior, and could not in any sense be regarded as the same. The fact is the name was originally used in an exclusive sense, and is properly only a variety, but the question of the specific name still remains unsettled.

A recent example in *Odontioda* illustrates one of these difficulties, though we wish to emphasise the fact that it has nothing to do with the case previously alluded to. The name *Odontioda* Red Riding Hood was applied to a hybrid between *Odontioda* Bradshawiæ and *Odontoglossum* Rossii, and some months later the same cross was called *O. Gladys*. The former name cannot be said to consist of a single word, and the case had been laid aside for consideration, and was overlooked until a second hybrid

appeared with the name *O. Gladys*, and the question arose how the complication should be dealt with. But if the original name does not consist of a single word it is at least indivisible, and not unduly long, and we propose to get over the difficulty by writing it *Odontioda Red-Riding-Hood*.

Another correspondent remarks that he appreciates the difficulty of keeping correct records of parentage, but it appears to him a hopeless subject. He also suggests that one of the difficulties of a stable nomenclature is that the rules came too late, and that it is difficult to break away from a bad precedent. But the R.H.S. rules extend back to 1889, when hybrids were certainly not numerous, and we attribute the confusion to other causes, which have been pointed out again and again. And we do not regard the matter as altogether hopeless, for there has been a considerable improvement of late. Probably the failure to appreciate the necessities of the case has been one of the most potent causes of confusion, for intelligible records cannot be kept under a multiplicity of conflicting systems.

Again, a correspondent expresses considerable sympathy with the non-scientific side of the question, that one has a right to identify his name and the names of his friends with the results of his efforts in hybridisation. But this is attainable without a total disregard of the rules, and the scope among varieties is endless. One correspondent admits having recorded over a thousand varieties of *Odontoglossum crispum*, and hybrids are so numerous and so variable that we have received complaints about the difficulty of finding names for them. True, we have too many varietal names, but as the superfluous ones drop out, and nobody troubles about priority, it does not matter so much. Individual variations, indeed, they often are. It is the confusion in specific names that is giving most of the trouble, and an effort at least should be made to give the Rules a chance.

The other day the following caught our eyes: "*Dendrobium nobile album*.—The pure white form of this species, often known as the *virginale* variety." The correction is inadmissible. This charming albino was described and figured in these pages in 1897 (page 145), on its original appearance, the varietal name *virginale* being chosen because there was already a variety *albiflorm*, which, however, has a maroon disc to the lip. *D. nobile album* was certificated three years later by the the R.H.S.

Two or three other important questions have been raised in correspondence, but they must be deferred for the present.

THE AMATEUR'S COLLECTION.

By C. ALWYN HARRISON.

THE sun will by now have gained considerable power, therefore shading will be needed to a greater extent than prescribed last month, as leaves are easily scorched on plants placed near the roof glass. Towards the end of the month the side and ends of the house that are not protected by the roller blinds should receive some form of shading. I find a thin mixture of flour and water stippled on the glass very effective, as this effectually prevents the sun's rays from scorching the plants, and yet does not exclude necessary light on dull days, and, moreover, soon gets washed off when the autumn rains begin.

Plenty of atmospheric moisture will now be needed, damping heavily between the pots several times a day, and spraying the plants also over their leaves morning and evening, but only on bright days. One word of caution is necessary in regard to this latter operation. On no account must a coarse syringe be employed, as too much water will fall into the axils of the leaves, and decay will promptly set in. A very fine spray syringe should be employed, and several suitable makes are now on the market.

The repotting of the late winter and spring flowering Cattleyas and their many hybrids demands our time. Two hints may be acceptable to beginners:—

(1) Do not repot a plant unless it needs it; a good sweet compost should last two years.

(2) Do not use pots of too large a size.

A good compost for Cattleyas consists of osmunda fibre and a few heads of sphagnum moss. Where the amateur has little time, I would advise a few bushels of compost ready prepared for use to be procured, as the following method of preparing the osmunda needs time. It should, first of all, be pulled to pieces, taking out any long fibre and leaves. Then rub it through a sieve of moderately fine mesh. It should then be chopped and passed through the sieve for the second time, when it will be free from dust and ready to form an excellent rooting medium. In repotting turn the plant out of the old pot and shake off any corks, and pick out with a pointed stick any bits of old compost. Cut off all dead roots and back bulbs. To my mind, three of these are ample to support each leading growth, for it has been proved that bulbs of older growth only act as a drain on the new ones. Fill a clean pot two-thirds full of corks, and on these set the plant. Pot very firmly, pressing the osmunda well round by means of a pointed stick. Be very careful not to bury the plant. The base

of the bulbs should just be a fraction below the surface of the osmunda, which in its turn should be just below the rim of the pot.

In addition to firm potting, it is important to make the plant secure by tying the pseudobulbs to a neat stick, for if left unsteady root action will be made slowly. Finish off by clipping the fibre with a pair of scissors to make it level, and add a few heads of sphagnum moss on the surface. After repotting, stand the plants in a warm, moist, and shady position, and spray over their leaves on bright days, and little water should be given until it is seen that new roots are pushing into the new soil.

Care and a little practice will soon render mastery in the art of potting, and perhaps, for a beginner, an ocular demonstration would be best.

Fire heat will not always be needed now, but avoid keeping a stuffy, closed house to save firing.

THE GENUS ODONTIODA (pp. 97-100).—Our readers would oblige by making the following amendments in their copies:—

Odontioda Cleopatra (p. 98). The second parent is Odm. Lairessei.

Oda. daltonense (p. 98) should read "ODA. DALTONENSIS."

Oda. Doris (p. 99). The raiser should read "Mrs. Norman Cookson."

Oda. Adrastus (p. 99) should read "ODA. ADRASTIA," as the hybrid was named after Adrastia, a Cretan nymph. The error arose through a misreading in the original record cited.

Oda. Mica (p. 100) is a synonym of O. SEYMOURIÆ, O.R., 1913, p. 288, a record accidentally overlooked. Raiser and date, Armstrong & Brown, Aug., 1913.

Oda. Gladys (p. 99). An earlier record for this hybrid is ODA. RED-RIDING-HOOD, O.R., 1913, p. 129. Raiser and date, F. M. Ogilvie, March, 1913. This leaves the name free for the following addition:—

ODA. GLADYS (Oda. Bradshawiæ × Odm. Pescatorei), O.R., 1915, p. 117.—G. W. Bird, March, 1915.

The following additions may also be made:—

ODA. CARDINAL (Oda. Vuylstekeæ × Odm. spectabile), O.R., 1915, p. 119.—Baron Bruno Schröder, March, 1915.

ODA. SULTAN (Oda. Charlesworthii × Odm. spectabile), O.R., 1915, p. 117.—G. W. Bird, March, 1915.

ODONTOGLOSSUM HUNNEWELLIANUM CITRINUM.—This is a charming variety from the collection of F. J. Hanbury, Esq., Brockhurst, East Grinstead, which we do not remember to have seen before. It is a case of albinism, the flowers having entirely lost the characteristic brown markings, leaving the flower clear light citron-yellow, hence the name. The species was introduced from the Bogota district over twenty-five years ago.—R.A.R.

OBITUARY.

BARON NATHAN MEYER ROTHSCHILD.—Horticulture has sustained a great loss in the death of Baron Rothschild, G.C.V.O., which took place on March 31st after an operation. His beautiful gardens at Tring Park, Herts, contained magnificent collections of decorative plants, and Orchids, we know, were among his chief favourites. Cattleyas and Lælias, Dendrobiums, Odontoglossums and others were splendidly grown at Tring, and the *Phalænopsis* there have been described as the best in Europe. He was a great patron of horticulture, and a liberal supporter of the different garden charities. His name is commemorated in *Phalænopsis Rothschildiana*, raised from *P. Schilleriana* and *P. amabilis*, and *Cattleya Rothschildiana*, from *C. Gaskelliana* and *C. Dowiana*. He is succeeded in the title by his eldest son, the Hon. Walter Rothschild, who is an ardent naturalist.

PROF. OTTO N. WITT.—Germany has lost one of her most enthusiastic amateur Orchidists. In an obituary notice in *Nature*, Sir T. E. Thorpe, C.B., F.R.S., remarks: "By the sudden death, through heart failure, on March 23rd, of Otto Nikolaus Witt, Geheimer Regierungsrat and professor of the Technical High School of Charlottenburg, at the comparatively early age of sixty-three, and in the full maturity of his intellectual power, Germany loses one of the most distinguished of her teachers of chemical technology, and one of the most successful of her pioneers in the application of organic chemistry to industrial pursuits. Of Russian extraction, Witt had intimate associations with all the countries now warring against Germany. . . . Upwards of thirty years ago Witt spent some time in England as a member of the now defunct firm of Williams, Thomas, and Dyer, then engaged in the industrial production of coal-tar dyes. He took kindly to English life, moved freely in scientific and literary circles in London, joined the Savile Club, had his boat on the river, and enjoyed to the full the hospitality which his many social gifts, the range of his knowledge, his admirable conversational powers and charm of manner readily secured for him."

An account of his various scientific activities, both here and in Germany, is outside the scope of this journal, but it is remarked that his name is associated with the discovery of certain typical classes of synthetic dye-stuffs, and that his contributions to the *Dictionary of Applied Chemistry* are among the most valuable articles in that work, and are characterised by Witt's excellent literary qualities, his grasp of principles, his power of co-ordination, his sense of proportion, and felicity of expression—qualities exhibited in no less degree in his frequent contributions to *Prometheus*, with which he was associated as editor for many years.

Witt was a singularly gifted man, of great attainments, artistic and literary, of large sympathies and wide interests, far removed indeed in mental habit and outlook from what is usually regarded as the typical German professor. He had an extensive knowledge of what is best in the literature of nearly every European nation, to which his remarkable linguistic attainments gave him ready access. In early life he was attracted to biological problems, was an excellent microscopist, and rivalled Cleve in studying and delineating the lower forms of organic life. In his later years he was devoted to the culture of Orchids, and was an occasional visitor to the Temple Show of our Royal Horticultural Society, and a frequent purchaser at the plant auctions in London.

It was in this connection that our acquaintance with him was made, partly by correspondence, and partly by a personal visit during one of his trips to London. He was an active member of the German Orchid Society, and joint editor of its official organ, *Orchis*, from 1909 to 1911, and afterwards a member of the Committee. He was the author of numerous important papers in *Orchis*, and it may be added that the figure of *Paphiopedilum Veus* given at page 145 of our seventeenth volume was from a photograph of a plant in his collection.

BEES FERTILISING CATTLEYAS.—Bees, we know, are not generally welcomed in Orchid houses, and Mr. Knudsen, of Boulder, Colorado, who has been very successful in growing *Cattleya Mossiæ*, found on one occasion that the flowers were being fertilised, and subsequent observation proved that this was done by a humble bee, *Bombus Huntii*, which gained access to the greenhouse. The case is recorded by Mr. T. D. A. Cockerell (*Coult. Bot. Gaz.*, lix. p. 330), to whom one of the bees was sent with several pollinia attached to the mesothorax. Mr. Cockerell remarks: "The case is interesting, since this bee has had, of course, no previous experience with *Cattleya* or with any closely related plant."

We believe that all *Cattleyas* are fertilised in a wild state by bees. A graphic account was sent to us a few years ago of the fertilisation of *Cattleya intermedia* in South Brazil by Mr. J. J. Keevil (*O.R.*, xviii. p. 29). The insect resembles an English Humble Bee, but is of treble the size. Alighting on the front lobe, the insect's weight depresses the lip from the column, allowing the bee to find its way to the nectary. On emerging backwards the pollinia are seen fixed on the back of its neck, to be deposited on the stigma of the next flower visited. This bee is the active agent in the production of the natural hybrids, *Læliocattleya elegans* and *Schilleriana*, and we suspect it to be the widely diffused American bee, *Eulæma cayennensis*, of which we once received a specimen from Mr. Rand, of Pará.

 VANDA LUZONICA.

THE mention of *Vanda luzonica* among the Philippine Orchids exhibited at the opening at the Panama Exhibition (see page 106) reminds us of a letter received nearly a year ago from Mr. Hugh Dixon, of Sidney, N.S.W., containing a dried flower and two photographs of this species. One of the photographs is here reproduced. Mr. Dixon writes: "The plant in habit is very much like the *Vandas* of this section. The mauve markings on the segments of the flower in the photo are not nearly



Fig. 12. VANDA LUZONICA.

so pronounced as on the flower itself, although the plate was panchromatic. The markings are violet, though on account of the tinge of yellow on the white ground it looks a darker mauve. The plants do well at the warm end of the Intermediate House." We have known this species for years, but are not aware that any description has been published. Dried specimens, drawings, and a photograph were sent to Kew by Mr. Loher in 1906, with the remark that it is allied to *V. tricolor*. The habit and floral

structure is well shown in the photograph. The flowers are described as cream-coloured, with the front lobe of the lip amethyst. It was found at Montalban, in the Island of Luzon, and living plants were sent to Erlangen, though we do not know whether it has flowered in Europe. The dried flower sent by Mr. Dixon is rather larger than the original ones, measuring two inches across. The second photo is on a more reduced scale, and shows a stem about as long as the inflorescence. The recurved leaves are five to six inches long. It is a very graceful and attractive addition to the genus.

R.A.R.

SALE OF THE Highbury Orchids.—The Sale of the Orchid Collection of the late Mr. Joseph Chamberlain took place at Messrs. Protheroe and Morris' Sale Rooms, Cheapside, on April 15th and 16th, and was largely attended. There were 701 lots, which realised a total of £826. The record price was twelve guineas, for a plant of *Odontoglossum Insleayi splendens*, purchased by Mr. Waters Butler, of Birmingham, who was one of the principal buyers. A second plant went for eleven guineas. There were some fine varieties of *Lælia anceps* in exceptionally well-grown examples, of which *L. a. Schröderiana* fetched six guineas, *L. a. Chamberlainiana*, two fine plants, 5½ guineas, and *L. a. Stella* £2 15s. *Cattleya Bowringiana pallida* fetched £4 10s., and a fine plant of the type went for half as much. The plant of *Læliocattleya Chamberlainiana* (*L.-c. Amelia* × *elegans Turneri*), which was described at page 371 of our last volume, sold for three guineas. Two fine specimens of *Lycaste Skinneri* fetched six guineas, *Cattleya labiata magnifica* 3½ guineas, and *C. Lawrenceana* £1 15s. Some plants of such well-known old Orchids as *Oncidium tigrinum*, *Odontoglossum grande*, *Rossii*, and *citrosimum* sold well, but the prices were generally low. The plants offered were largely well-known species and varieties, with some of the older hybrids. A few things were secured for Kew, including large plants of *Cattleya Bowringiana*, *Odontoglossum coronarium* and *Edwardii*, and *Promenæa xanthina*.

THE ORIGIN OF CHARACTERS.—The old and ever vague problem of the Origin of Species is being resolved into the newer and more definite problem of the Origin of Characters. In the dim future, when we know how and why new characters originate, and how and why they transform and disappear, the problem of species will have long been solved and well-nigh forgotten. This is because a species is an assemblage or colony of similar individuals; each individual is composed of a vast number of somewhat similar new or old characters, each character has its independent and separate history, each character is in a certain stage of evolution, each character is correlated with the other characters of the individual.—OSBORN.



CALENDAR OF OPERATIONS FOR MAY.



By W. H. WHITE, for many years Orchid Grower to the
late Sir Trevor Lawrence, Bart., K.C.V.O.

TEMPERATURES.—Now that the amount of daylight has increased, the majority of the plants are growing and rooting freely, and the night temperatures, as maintained by fire-heat, should be advanced a few degrees—the East Indian house from 65° to 70° ; *Cattleya*, 60° to 65° ; Intermediate house a few degrees less; Mexican, about 60° , and the *Odontoglossum* or Cool house about 50° . The higher temperatures should be maintained whenever the external air stands at about 50° , but when colder the lower one given is preferable. When finishing up for the night those in charge of the fires may be weatherwise enough to foresee what the weather is likely to be, and so be able to regulate the heating apparatus, and the ventilation of the houses, that the temperatures in each division will be about correct in the morning. It will not be advisable to employ artificial heat in the Cool houses except when early morning frosts are imminent, and then the pipes should be made only just lukewarm, for should the atmosphere inside become too warm by this means, the plants might suffer, and insect pests would make their appearance and multiply rapidly. Unless absolutely necessary, use no fire heat in this division, and the plants will be all the better without it. In the day-time, as mentioned in last month's Calendar, there will still be considerable variation in the temperatures; on dull, wet days the higher temperatures prescribed for night should be maintained, but when the weather is warm and bright a rise of several degrees by sun-heat will be beneficial; in fact as regards the warmer divisions, it matters little how much the rise in temperature by sun-heat may be, provided there is sufficient ventilation afforded to balance it.

SUMMER QUARTERS.—Towards the end of the month the following plants, which have been wintered in the Intermediate house, may be removed to a cooler and more airy house, and the warmest part of the *Odontoglossum* division will be a very suitable place for them for the next six months. These include *Lælia harpophylla*, *L. pumila*, *L. præstans*, *L. Dayana*, *Dendrobium infundibulum* and *Jamesianum*, *Odontoglossum Krameri* and *O. nævium*, *Miltonia vexillaria*, and any of its hybrids as they go out of bloom, also *M. Phalænopsis*, *M. Endresii*, and the distinct *M. Schroederiana*, which also winter best in a light position in the Intermediate house. During summer they prefer the Cool house. So soon as the day temperature of the Cool house rises on most days to 60° , without the aid of fire-heat, it is time for them to be shifted from their

winter quarters ; with mild weather they are soon at home, and all through the summer they enjoy the extra shade and the moist airy atmosphere as much as any plant in the house. After removal to the Cool house it is advisable to keep the plants for several weeks a trifle drier at the root than they have been in the warmer division.

MILTONIA VEXILLARIA and several of its beautiful hybrids will now be sending up their flower spikes, and ought to be making from the base of the young growths plenty of new roots to support the flowers. Of these roots woodlice are extremely fond, and if not trapped and killed will quickly eat the point of every one immediately it becomes visible. *M. Rœzlii*, when well cultivated, is a beautiful Orchid, and the flowers are strongly rose-scented. It requires more warmth than any of the others. During winter the plant succeeds best on the shady side of the East Indian house, but through the summer the Intermediate house is the best place for it. Being a compact-rooting plant it should not be over-potted, as the roots like to cling to the sides of the pot, and when well established will enjoy an almost unlimited supply of water.

MASDEVALLIAS.—The white *Masdevallia tovarensis* may now be placed in the Cool house, if well established, but those plants that have been recently repotted should be kept in the warmer division for several weeks longer. All the Chimæroid *Masdevallias*, as *M. Chimæra*, *bella*, *Wallisii*, *Backhouseana*, and *nycterina* will now do suspended in the Cool house, As these plants pass their flowers in a downward direction, like *Stanhopeas*, they should never be grown in pots, or many of their flowers would be destroyed. Put them in shallow baskets made of teak rods, placed wide apart ; use no crocks, and only *osmunda* fibre to root in. They must be kept moist the whole year round, as dryness at the root or in the air is bad for them ; lightly spray their foliage every day.

STIPPLING THE ROOF GLASS.—Assuming that the cold dull weather is practically at an end, we may now reasonably expect plenty of warm sunshine, which will be beneficial to the plants in every way. For several years past I have found it advantageous, at this time of the year, to have the roof glass of nearly all the houses stippled outside, the exceptions being the *Dendrobium* and Mexican houses. For the warmer houses I used a mixture of white lead and paraffin, adding a little clear varnish to make it adhere firmly to the glass. The stippling should be done whilst the sun is shining full upon the glass, so that the mixture may dry on as quickly as possible. Clean the glass thoroughly beforehand, and see that no dirt is present where the glass overlaps, otherwise the mixture will block up the spaces, and make the roof air tight. Put the stippling mixture on these Warm houses as thinly as possible, and by the middle of the summer a considerable portion of it will be worn off, thereby gradually accustoming

the plants to more light and sunshine. This is particularly applicable to Cattleyas, as light is always very beneficial to them towards the end of the summer months. The stippling on the Cool houses is done more thickly, and a mixture of flour and water is used, this being more suitable for the plants, as the surface of the glass remains cooler than when mineral substances are used. Choose a fine bright day for stippling the Cool houses, and remove the plants, so that the sun can effectually dry the coating firm and hard.

The stippling of the glass has, undoubtedly, its advantages and disadvantages; for instance, during a long spell of dull weather a great deal of clear light is prevented from reaching the plants, which is not altogether good for them, but, on the other hand, the blinds or shadings need not be let down nearly so soon in the morning, and may be pulled up very much earlier in the afternoon, thereby affording the plants a very great amount of natural sun-heat, which is always very beneficial to the majority of those which occupy the warmer divisions.

COOL HOUSE.—Plants of *Sophronitis grandiflora* that require fresh rooting material may now be attended to, as they are commencing to push out roots from the growths which have recently flowered. Provide plenty of drainage, and employ osmunda fibre and sphagnum moss as the rooting medium. Cut the moss up rather finely, as when used in a rough, coarse state this material holds moisture for too long a time, which is always inimical to the health of the new roots. Suspend the plants near to the roof glass, and afford plenty of water whilst the roots are active, and till the growths are fully made up, after which time the plants, being at rest, will need very little water to keep the small pseudobulbs and leaves fresh and green. Plants of *Odontoglossum Rossii*, *O. Cervantesii*, *O. Humeanum*, and *O. Erstedii* that have recently passed out of flower should be suspended close to the roof glass, and be afforded just enough water to prevent the pseudobulbs and leaves from shrivelling. An excess of water whilst the plants are at rest will cause the roots to decay.

ANGULOAS.—In this house the various Anguloas, including *A. Clowesii*, *eburnea*, *uniflora*, *Ruckeri*, and *Cliftonii* are making new growth, and pushing up their flower spikes. Where convenient, it is advisable to remove the plants to a cool, shady part of the Intermediate house. The plants should not be repotted now, especially those that are about to flower, but the operation may be carried out immediately the blooms are cut, and new roots begin to push out from the base of the young growths. I have tried several mixtures for these Anguloas, and the plants that succeeded best were those planted in well-drained, hard, coarse osmunda fibre, no sphagnum moss being used. When repotting, keep the base of the young growths on a level with the rim of the pot, and pack the material

quite firmly around each plant. Good and efficient drainage is essential. For the present, afford sufficient water to keep the compost just moist.

LYCASTES.—*Lycastes* are now flowering, and whilst the plants are in bloom it is advisable to wash the undersides of the leaves occasionally to destroy red-spider, which frequently attacks them. Very careful watering is necessary whilst these plants are in flower, as if too much be afforded the old roots will decay, and the flowers soon become spotted and useless. Repotting may be done when the new growths are several inches high. Pot them in the same kind of compost as recommended in a former Calendar for the deciduous *Calanthes*, and the after treatment as regards watering should be exactly the same.

CATTLEYA HOUSE.—In this house plants of *Cattleya Warscewiczii* (gigas), *C. Dowiana*, *C. D. aurea*, and several of their hybrids are forming their new growths, and should be placed well up to the roof glass. Although the plants may be growing strong and freely, much care should be exercised in affording water, as any excess of water till the young growths are well advanced is likely to cause the old roots to decay and the young growths to damp off. When the old compost has become close and stagnant, and saturated through over-watering, it generally takes a long time to get dry, and it is during this interval that much damage is done. Water may be more freely applied when the flower-sheaths are visible in the new growths, but the amount of moisture should be lessened gradually after the flowers expand. Repotting should be deferred until after the completion of growth.

Plants of *C. Schröderæ* and several *Cattleya*, *Læliocattleya*, and *Brassocattleya* hybrids that have recently passed out of flower should be placed at the cooler end of the house, and be kept comparatively dry at the root, otherwise they may recommence to grow instead of having a rest. While the plants are at rest they should not be allowed to shrivel too much for want of water, but if the pseudobulbs have been properly matured, only a little water is needed to keep them fairly plump. Immediately new roots develop from the current season's growth, and the old ones send out fresh rootlets, afford the plants larger pots, or fresh rooting material to those that require it.

Such species as *C. Trianae*, *C. Percivaliana*, *C. Gaskelliana*, *C. Lueddemanniana* (speciosissima), the autumn-flowering *C. labiata*, and many of their hybrids are making new growths. Some of these plants are forming fresh roots from the old ones, others will quickly develop roots from the young growths. Such plants, provided they need more root room, may be repotted, and, if carefully attended to, the young roots will speedily become established in the fresh compost. Plants of *C. Mossiæ* and *C. Mendelii* that have failed to produce flower sheaths, and others that

have deteriorated through loss of roots or other causes, will also begin to make fresh roots at this season, and may be repotted and started afresh. In the case of unhealthy plants it is best to divide and repot the growing pieces separately into as small pots as possible. Cut off all useless back bulbs; about three bulbs behind each leading growth is quite sufficient. The pots for these *Cattleyas* should be filled to at least one-half their depth with clean crocks, and the larger the pot the more drainage becomes necessary. Pot the plants in a mixture of good hard *osmunda* fibre and *AI* fibre in about equal proportions, and mix them well together.

When preparing the *osmunda* fibre it is advisable to remove the brown mossy substance, as it retains moisture for too long a time, causing the fibre to decay prematurely, it also binds so closely together that it is difficult for the roots or water to pass freely through it.

When the plants have been repotted place them on the shady side of the house, and for a few weeks afterwards afford water with extra care, merely watering or sprinkling the compost around the edge of the pot to induce the roots to grow. If carefully done the centre of the plant will be kept on the dry side. As the plants become re-established, increase the amount of root watering gradually, and afford more atmospheric moisture.

Young beginners should carefully study the plants, and learn to avoid over-watering all *Cattleyas*, *Lælias*, and their hybrids at all seasons, as old and experienced Orchid growers know well that greater numbers of these plants have been injured through over-watering than from any other cause.

Afford the plants plenty of ventilation whenever practicable; thus, in mild weather, the bottom ventilators should be wide open, both by day and night. During warm and bright weather the top ventilators may also be opened for several hours during the middle of the day, but cold draughts or strong currents of dry air from several different openings must be avoided.

EAST INDIAN HOUSE.—In this house the greater number of the *Phalænopsis*, as *P. Schilleriana*, *Aphrodite*, *amabilis*, and *Sanderiana* will have passed out of flower, and have commenced to make new leaves, also to show renewed activity at the root. This is, therefore, the proper season for ascertaining if new baskets, pots, or cylinders are required, or if the potting materials need to be renewed. Whichever receptacle is preferred it should at least be three-parts filled with drainage materials, using only a thin layer of sphagnum moss on the surface. These plants should have a position afforded them on the shady side of the East Indian house. After root disturbance very little water will be necessary, merely spraying the moss on the surface occasionally to keep it fresh and green.

DENDROBIUM PHALÆNOPSIS.—At the present time plants of this beautiful and useful *Dendrobe* have started to grow, and will quickly push

out numbers of young roots from the base of the new shoots, therefore before these roots make much progress, the plants, if they require it, ought to be afforded more rooting space. It is advisable to grow these plants in as small a receptacle as possible, as during growth they delight in plenty of water at the root, but they thrive best when the material dries quickly, therefore no great depth of compost should be employed, and this may consist of chopped osmunda fibre and Air fibre in about equal parts. It is necessary that these materials be packed quite firmly around the base of the plants.

Other Dendrobiums that require similar attention at this season, and which send out roots when the new growth is a few inches high, are the tall-growing *D. Dalhousieanum*, *moschatum*, *fimbriatum*, *clavatum*, &c. Grow these species, also *D. bigibbum* and *D. Goldiei*, in the warmest and least shady part of the hottest house with their foliage as near to the roof glass as possible.

PLEIONES.—Such Pleiones as *P. maculata*, *lagenaria*, &c., are now in the middle of their growing season, and at such time it is almost impossible to afford them too much water. An occasional dose of weak liquid cow-manure will strengthen the foliage and increase the size of the bulbs. These Pleiones grow well in the Cattleya or Intermediate house, and should be elevated near to the roof glass, with plenty of fresh air circulating freely around them. Such species as *P. humilis*, *P. Reichenbachiana*, *P. yunnanensis*, &c., should be grown well up to the roof glass in the Cool house, and whilst growth is being made keep them moist.



THE LATE MR. J. C. HARVEY.—In its January issue the *Orchid Review* published an article entitled “Orchids in South Mexico,” from the facile pen of Mr. James C. Harvey (pp. 12-18), and it is sad to think that the writer passed suddenly away on the fourteenth of the previous month. His death is a distinct and serious loss to Orchidology. To the grower, and to those interested in the scientific study of the family, his loss will be well nigh irreparable. Notwithstanding his sixty-four years, he was an indefatigable collector, and in pursuit of his favourites braved terrors and discomforts of travel in the tropical jungle which would have appalled many younger and less ambitious enthusiasts. Although a collector upon a large scale, Mr. Harvey was strictly an amateur, utilising his collections only for purposes of exchange, and at the time of his death he had accumulated the finest collection existing in the Republic of Mexico. A lovely and accomplished gentleman, a rare companion and a staunch and loyal friend, his death will be a loss indeed to his many correspondents scattered over the world in every country where the gentle art of Orchid growing is followed.—WM. S. LYON, Gardens of Nagtajan, Manila, P.I.

EULOPHIELLA ELISABETHÆ.

AT the meeting of the Manchester Orchid Society, held on April 15th, a Cultural Certificate was given to a fine plant of *Eulophiella Elisabethæ*, from the collection of O. O. Wrigley, Esq., Bridge Hall, Bury, and the circumstance serves to recall the history of this remarkable species,

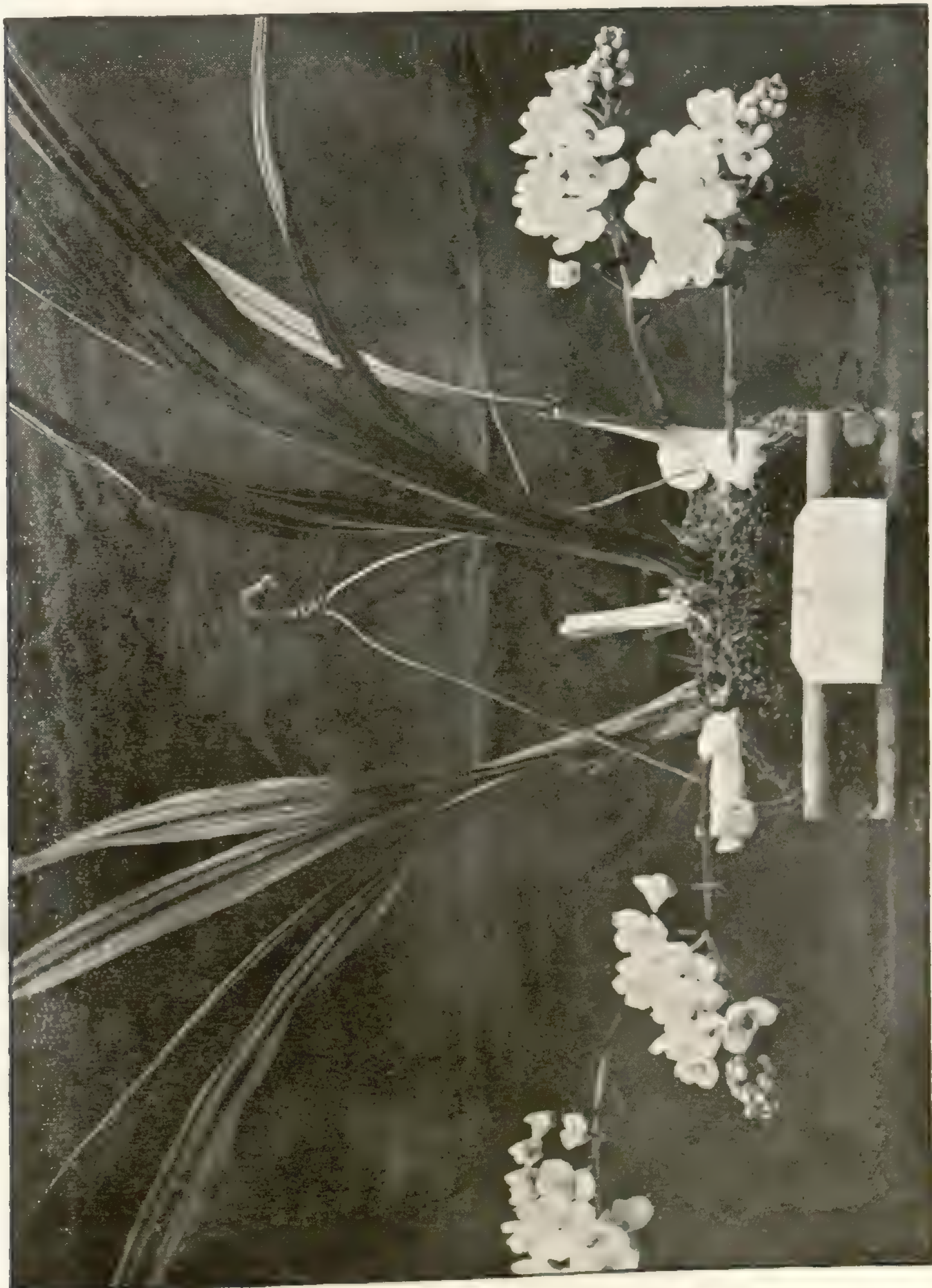


Fig. 13. EULOPHIELLA ELISABETHÆ.

and also another fine plant which flowered many years ago at Kew, and still remains in good health in the collection. The figure of this plant is here given, necessarily on a much reduced scale. *Eulophiella Elisabethæ*

was originally introduced by Messrs. Linden, of Brussels, who flowered it in 1892, when it was described and figured (*Lindenia*, t. 325), a new genus being formed for its reception. It was first exhibited at the Ghent Quinquennial Exhibition, in April, 1893, and was described as probably the most remarkable plant in the whole show (*O.R.*, i. p. 159). Its history was also very fully given at this time (pp. 207-208, 234), from which it appears that a single plant appeared in an importation of *Angræcum sesquipedale* and *Grammangis Ellisii* sent home by M. Sallarin, and that its real character was not known until it flowered, though it was evidently distinct from the outset. Its introduction was prior to March, 1891, when Messrs. Linden received a letter from M. L. Hamelin stating that M. Sallarin, of whom news had not been received for months, had been drowned by the upsetting of a small pirogue when crossing an arm of the sea. The circumstance seemed to have put M. Hamelin in touch with the plant, which he recognised from a copy of the *Lindenia*, and in June, 1893, an importation from him was sold by Messrs. F. Sander & Co. It flowered in the following March, both with Messrs. Sander and with Sir Trevor Lawrence, the latter receiving a First-class Certificate from the R.H.S. for a plant bearing two fine spikes. The species thrives well under basket treatment in the East Indian house, but does not succeed under cooler treatment, hence it has become rather rare of late years. For the romance which has been incorporated with its history we may briefly refer to pp. 101, 231 of our second volume, and numerous references may be found by means of the Index to the first three volumes.

ODONTOGLOSSUM ADRIANÆ RAISED ARTIFICIALLY.—It is interesting to record that the origin of *Odontoglossum Adrianæ* has again been proved experimentally, a plant being now in bloom at Kew that was raised from a plain white *O. crispum* crossed with pollen from *O. Hunnewellianum*. The flowers are quite intermediate in shape, and the colour light yellow with numerous small blotches. The cross was made by the writer in May, 1906, with the object of proving the origin of this hybrid. Although flowering after *O. Coradinei* and *O. prævisum*, it was the first of the series, but the seedlings, after making their first leaves, received a severe check through accidental exposure when the house was being painted, and at one time it was feared they would not recover. Several earlier crosses were without result owing to the difficulty of getting the seeds to germinate. It should be added that in the February after this cross was made a seedling flowered in the collection of De Barri Crawshay, Esq., Rosefield, Sevenoaks, that had been obtained from *O. Hunnewellianum* crossed with the blotched *O. crispum* Raymond Crawshay (*O.R.*, xv. p. 95), the result being a fairly typical *O. Adrianæ*, as in the present case.—R.A.R.

 SOCIETIES.

ROYAL HORTICULTURAL.

A MEETING was held at the Royal Horticultural Hall, Vincent Square, Westminster, on April 13th, when there was a good display of Orchids, and the awards consisted of five medals, three Awards of Merit, and one First-class Certificate.

Orchid Committee present: Sir Harry J. Veitch (in the Chair), J. O'Brien (hon. sec.), Gurney Wilson, W. Bolton, C. J. Lucas, W. H. Hatcher, S. W. Flory, W. H. White, A. Dye, W. P. Bound, H. G. Alexander, J. E. Shill, J. Charlesworth, W. Cobb, A. McBean, F. M. Ogilvie, Pantia Ralli, F. J. Hanbury, R. G. Thwaites, Stuart H. Low, W. Thompson, R. A. Rolfe, J. Wilson Potter, and Sir Jeremiah Colman, Bart.

Sir Jeremiah Colman, Bart., Gatton Park, Reigate (gr. Mr. Collier), staged a very interesting group of botanical Orchids, including well-flowered plants of *Pleurothallis Grobyi*, *Masdevallia troglodytes*, *Arminii*, and *xanthina*, *Polystachya paniculata* with four inflorescences, *Scaphosepalum ochthodes*, *Maxillaria flava*, and others. Also a strong plant of *Odontioda Bradshawiae purpurea*, bearing a magnificent panicle of scarlet flowers margined with purple.

H. S. Goodson, Esq., Fairlawn, Putney (gr. Mr. Day), sent *Odontoglossum crispum* H. S. Goodson, a well-shaped, blotched flower, and *Sophrocattælia Olive* var. Fairlawn (S.-l. *Psyche* × C. *Enid*), bearing three rosy flowers, with the lip deep purple in front of the yellow disc.

W. R. Lee, Esq., Plumpton Hall, Heywood (gr. Mr. Branch), sent *Miltonia Charlesworthii* var. *Beatrice* (*vexillaria Cobbiana* × *Hyeana*), *Odontioda Brewii* var. *Leeana*, with dark chocolate flowers, and two good examples of *Brassocattleya Cliftonii magnifica*.

C. J. Phillips, Esq., Sevenoaks (gr. Mr. Bucknell), sent *Odontoglossum Phillipsianum* (*luteopurpureum Vuylstekeanum* × *eximium*), a promising hybrid, having light orange-buff sepals and petals margined with white, and the lip rather darker with a yellow crest.

W. R. St.-Quintin, Esq., Scampston Hall, Rillington (gr. Mr. Puddle), showed *Brassocattleya Vanessa* (C. *Trianae* × B.-c. *Mariæ*), bearing an enormous flower, with a light yellow disc to the lip.

R. G. Thwaites, Esq., Chessington, Streatham (gr. Mr. Hannington), sent a seedling *Odontioda Madeline* (*Oda. Charlesworthii* × *Odm. crispum*), bearing its first flower, and two blotched seedling *Odontoglossums*.

Messrs. Charlesworth & Co., Haywards Heath, staged a choice group, including fine examples of *Angræcum sesquipedale* and *A. Sanderianum* with four racemes, the striking *Zygocolax Charlesworthii*, *Odontioda Feronia* (Odm. *Edwardii* × Oda. *Bradshawiæ*), with numerous small purple flowers, good forms of *O. Schröderi*, *Bradshawiæ*, *Joan*, *Charlesworthii*, and *Brewii*, including a particularly light-coloured form of the latter, good examples of *Odontoglossum armainvillierense xanthotes*, *Harryanum*, *Jasper*, a charming *O. Pescatorei virginale*, *Cattleya Schröderæ alba*, and others (Silver Banksian Medal).

Mr. H. Dixon, Spencer Park Nursery, Wandsworth, staged a good group, including *Dendrobium Brymerianum*, *Sophronitis grandiflora*, *Odontioda Charlesworthii*, *Cymbidium insigne*, and some good *Cattleyas* and *Odontoglossums* (Silver Banksian Medal).

Messrs. Hassall & Co., Southgate, staged a bright and attractive group, including good examples of *Cattleya Mendelii*, *Læliocattleya Ballii*, *Miltonia Bleuana*, *Odontioda loochristiensis* (C. *Nœtzliana* × *O. gloriosum*), *O. Diana* and *Bradshawiæ*, *Odontoglossum Jasper*, *Brassocattleya Menda*, and others (Silver Banksian Medal).

Messrs. Stuart Low & Co., Jarvisbrook, staged a good group, including some well-flowered *Dendrobium Devonianum*, *D. dixanthum*, *D. Thwaitesiæ*, and others, *Sophronitis grandiflora*, *Odontoglossum Wilckeanum* and *Phœbe*, some well-flowered *Cattleya Schröderæ*, *Læliocattleya Feronia*, *Cymbidium Lowianum*, *Brassocattleyas*, and other good things (Silver Banksian Medal).

Messrs. Sander & Sons, St. Albans, staged an interesting group, including the rare *Dendrobium senile*, *Epidiacrium Colmanii*, the handsome *Maxillaria Fletcheriana*, *Renanthera Imschootiana*, *Cœlogyne ochracea*, *Brassavola nodosa*, *Cypripedium St.-Swithin* (*philippinense* × *Rothschildianum*), combining the good qualities of both parents, and some good *Cattleyas*, *Læliocattleyas*, *Odontiodas*, and *Odontoglossums* (Silver Banksian Medal).

Messrs. Flory & Black, Slough, sent the pretty little *Masdevallia O'Brieniana*, and a pretty *Odontoglossum* from *O. mirum* × *Lambeauianum*, having a white ground with large chocolate blotches.

AWARDS OF MERIT.

LÆLIOCATTLEYA NENA (*warnhamensis* × *Dominiana langleyensis*).—A brightly-coloured hybrid, bearing a spike of five flowers, having reddish-orange sepals and petals and a deep ruby-red lip. Exhibited by Messrs. Flory & Black.

ODONTIODA ZENOBIA VAR. LEEANA (Odm. *percultum* × Oda. *Charlesworthii*).—A fine thing, having claret-brown sepals and petals, and the lip deep rose-purple behind and white in front. Exhibited by W. R. Lee, Esq-

ODONTOGLOSSUM LEVIATHAN (parentage unrecorded).—Apparently a form of *O. amabile*, bearing six enormous flowers, with the sepals and petals tinged with rose and spotted and blotched with brown, and the lip well blotched. Exhibited by W. R. Lee, Esq.

CULTURAL COMMENDATION.

MASDEVALLIA KIMBALLIANA VAR. POURBAIXII (*Veitchiana* × *caudata*).—To Mr. J. Collier, gr. to Sir Jeremiah Colman, Bart., for a very fine specimen, bearing a large number of orange-red flowers.

At the meeting held on April 27th the Orchids, of which there was a very good display, were confined to the Orchid annexe, so full was the Hall with general exhibits, and there was also an excellent attendance. The Orchid awards consisted of six medals, one First-class Certificate, and two Awards of Merit.

Committee present: J. Gurney Fowler (in the Chair), J. O'Brien (hon. sec.), Gurney Wilson, R. Brooman White, C. J. Lucas, W. Bolton, Clive Cookson, S. W. Flory, A. Dye, W. H. White, G. Hunter, W. P. Bound, H. G. Alexander, J. E. Shill, W. H. Hatcher, J. Cypher, J. Charlesworth, Walter Cobb, T. Armstrong, F. M. Ogilvie, Pantia Ralli, F. J. Hanbury, R. G. Thwaites, J. Wilson Potter, Stuart H. Low, R. A. Rolfe, Sir Harry J. Veitch, and Sir Jeremiah Colman, Bart.

Sir Jeremiah Colman, Bart., Gatton Park, Reigate (gr. Mr. J. Collier), showed a fine specimen of *Oncidium monachicum*, bearing a large panicle of yellow and brown flowers, the petals uniting at the apex into a ring, *Læliocattleya Eldorado* (L.-c. *Canhamiana alba* × *C. Eldorado*), having white sepals and petals, the front of the lip rose-purple, and the disc orange-yellow, the rare *Lissochilus arenarius*, and a stand of cut *Dendrobiums*, noteworthy among them being the fine *D. Lady Colman*, *D. Alpha* (*euosmum* × *regium*), and a charming hybrid from *D. aureum* and *regium*, having light rose flowers with the disc of the lip yellow.

G. W. Bird, Esq., Manor House, West Wickham (gr. Redden), sent *Odontioda Gladys* (*Odm. Pescatorei* × *Oda. Bradshawiæ*), and *O. Sensation* var. *Arethusa* (*Odm. crispum* *Queen Victoria* × *Oda. Vuylstekeæ*), well blotched with chocolate on a yellow ground margined with lilac.

Walter Cobb, Esq., Normanhurst, Rusper (gr. Mr. Salter), sent *Brassocattleya Mariæ Cobb's* var., a pretty blush white form, *Miltonia Bleuana rosea*, blush white with the lower halves of the petals purple, and *Læliocattleya Lucia Cobb's* var., bearing a spike of six golden-yellow flowers, with the front lobe of the lip ruby-purple.

The Earl of Craven, Coombe Abbey, Coventry (gr. Mr. H. Chandler), sent *Læliocattleya Corneliensis* (L.-c. *Haroldiana* × *C. Schröderæ*), bearing three light salmon-buff flowers, with an orange throat to the lip.

F. M. Ogilvie, Esq., The Shrubbery, Oxford (gr. Mr. Balmforth), showed *Cattleya Mendelii* Queen Mary, a pretty white form with a blush-white front to the lip.

W. Potter, Esq., Edenside, Beckenham, sent flowers of a light-coloured form of *Dendrobium Rubens*.

Baron Bruno Schröder, The Dell, Englefield Green (gr. Mr. Shill), showed a plant of *Læliocattleya Ivanhoe* (L.-c. *eximia* × *C. Dowiana*), a large and well-shaped rose-purple flower, with the front lobe of the lip crimson-purple, and the disc yellow.

R. G. Thwaites, Esq., Chessington, Streatham (gr. Mr. Hannington), showed an interesting little group, including *Odontioda Sanderæ*, *luminosa*, and *Bradshawiæ*, *Soprocattlælia Marathon*, *Læliocattleya callistoglôssa*, *Odontoglossum Pescatorei*, *O. Newlingii*, and others.

Messrs. Charlesworth & Co., Haywards Heath, staged a choice group of well-grown plants, including a fine *Miltonia Warscewiczii*, some well-flowered *Trichopilia Backhouseana*, *Zygocolax Charlesworthii*, *Odontoglossum eximium*, *illustrissimum*, and *O. sceptrum aureum*, *blandum*, *Kegeljanii*, a finely-grown *O. crispum* with two spikes, *Oncidium Marshallianum*, *Miltonia vexillaria gigantea*, *Odontioda Joan*, *Brassocattleya Veitchii*, and others (Silver Banksian Medal).

Messrs. Cypher & Sons, Cheltenham, staged a fine group, including some well-grown *Dendrobium Wardianum* and *Jamesianum*, *Cymbidium Butterfly*, *Masdevallia Houtteana*, *Promenæa xanthina*, some profusely-flowered *Sophronitis grandiflora*, *Trichopilia Hennisii*, a good plant of *Cirrhopetalum Collettii*, *Odontoglossum cirrhosum* and *Titania*, and the pretty little *Vanda cœrulescens Boxallii* (Silver Banksian Medal).

Messrs. Hassall & Co., Southgate, staged an effective group, including a fine *Cœlogyne pandurata*, a beautiful example of *Oncidium pulchellum*, and some good forms of *Cattleya Mendelii*, with examples of *Læliocattleya Ballii* in the centre, and several *Trichopilia Backhouseana* in front (Silver Banksian Medal).

Messrs. Stuart Low & Co., Jarvisbrook, staged a good group, including well-flowered examples of *Dendrobium densiflorum*, *thyrsiflorum*, *suavissimum*, *chrysotoxum*, *Brymerianum*, *Jamesianum*, and *dixanthum*, with *Renanthera Imschootiana*, *Odontioda Charlesworthii*, *Oncidium Kramerianum*, and a few good *Cattleyas* and *Læliocattleyas* (Silver Banksian Medal).

Messrs. J. & A. McBean, Cooksbridge, staged a choice group, including a very dark *Oncidioda Cooksoniæ*, *Miltonia Bleuana*, *Cattleya Schroederæ*, *Odontioda Charlesworthii* with much yellow in the ground colour, some good *Odontoglossums*, and a fine example of *Oncidium McBeanianum* in the centre (Silver Banksian Medal).

Mr. H. Dixon, Spencer Park Nursery, Wandsworth, staged an interesting little group, including *Odontioda Cupid* and *Charlesworthii*, *Miltonia vexillaria*, *Cattleya Mendelii*, *Mossiaë*, and *Schroederæ*, *Læliocattleyas*, *Odontoglossum pulchellum*, and others (Bronze Banksian Medal).

Messrs. Flory & Black, Slough, sent *Læliocattleya Fascinator-Mossiaë* var. *Imogene*, having white sepals and petals, and the front of the lip ruby-purple, and *Brassocattleya Constance* (B.-c. *Veitchii* × *C. intertexta*), a pretty rosy-lilac hybrid with a darker lip.

FIRST-CLASS CERTIFICATE.

BRASSOCATTLEYA CLIFTONII FOWLER'S VAR. (*C. Trianæ* × B.-c. *Veitchii*).—A large and beautiful white form of perfect shape, the lip being well-fringed and having a small purple blotch in front of the yellow disc. Exhibited by J. Gurney Fowler, Esq., Brackenhurst, Pembury (gr. Mr. J. Davis).

AWARDS OF MERIT.

BRASSOCATTLEYA VILMORINIANA SHRUBBERY VAR. (*C. Mossiaë* × B.-c. *Leemanniaë*).—A fine form, bright purple-rose in colour, and with a dark yellow disc to the lip. Exhibited by F. M. Ogilvie, Esq.

LÆLIOCATTLEYA ISABEL-SANDER GATTON PARK VAR. (L.-c. *Canhamiana alba* × *C. Mossiaë Reineckeana*).—A beautiful white flower of good shape with slight pink mottling in front of the yellow crest of the lip. Exhibited by Sir Jeremiah Colman, Bart.

MANCHESTER & NORTH OF ENGLAND ORCHID.

At the meeting held at the Coal Exchange, Manchester, on April 1st, the members of Committee present were: Rev. J. Crombleholme (in the Chair), Messrs. R. Ashworth, J. C. Cowan, J. Cypher, A. G. Ellwood, J. Evans, Dr. Hartley, J. Howes, A. J. Keeling, J. Lupton, D. McLeod, C. Parker, W. Shackleton, H. Thorp, Z. A. Ward, and H. Arthur (Secretary).

Silver-gilt Medals were awarded to R. Ashworth, Esq., Newchurch (gr. Mr. Gilden), to W. Thompson, Esq., Stone (gr. Mr. Howes), and to W. R. Lee, Esq., Heywood (gr. Mr. Branch), for very fine miscellaneous groups.

Silver Medals were awarded to Col. J. Rutherford, M.P., Blackburn (gr. Mr. Lupton), and to Messrs. A. J. Keeling & Sons, Bradford, for fine groups.

A Special Vote of Thanks was awarded to O. O. Wrigley, Esq., Bury (gr. Mr. Rogers), for a choice group of *Dendrobiums*, *Lycaste Skinneri*, *Sophronis grandiflora*, and a few others.

Interesting exhibits were also sent by A. J. Oakshott, Esq., Bidston (gr. Mr. Findlow), Philip Smith, Esq., Ashton-on-Mersey (gr. Mr.

Thompson), Mrs. S. Gratrix, Whalley Range (gr. Mr. Brown), S. Gratrix, Esq., Whalley Range (gr. Mr. Brown), J. Butterworth, Esq., Burnley (gr. Mr. Wilson), Messrs. Sander & Sons, St. Albans, Messrs. J. & A. McBean, Cooksbridge, Messrs. Charlesworth & Co., Haywards Heath, and Mr. W. Shackleton, Bradford.

FIRST-CLASS CERTIFICATES.

Odontoglossum illustrissimum var. *Canopus*, *Odontioda luminosa* (Odm. *Rossii rubescens* × *Oda. Charlesworthii*), and *Sophrocattlæia Marathon Ashlands* var., from R. Ashworth, Esq.

Odontioda Zenobia Thompson's var. (Odm. *percultum* × *Oda. Charlesworthii*), from Wm. Thompson, Esq.

Dendrobium Thwaitesiæ Veitch's var. (*splendidissimum* × *Wiganianæ*), from S. Gratrix, Esq., and Messrs. A. J. Keeling & Sons.

Odontoglossum crispum xanthotes Oakshottianæ, from A. J. Oakshott, Esq.

AWARDS OF MERIT.

Odontoglossum Titan and *Læliocattleya Britannia* var. *Melanie* (C. *Warszewiczii* Frau *Melanie Beyrodt* × L.-c. *Canhamiana alba*), from Wm. Thompson, Esq.

Cymbidium insigne album and *Oncidium King Albert*, from P. Smith, Esq.

Odontoglossum percultum Othello and *O. Ernesti memoria R. le Doux*, from A. J. Oakshott, Esq.

Cypripedium Rossetti var. *Mary Gratrix*, from Mrs. S. Gratrix.

Odontoglossum illustrissimum var. *Palatine*, from Col. J. Rutherford, M.P.

Odontoglossum Jasper var. *Masereelianum*, from R. Ashworth, Esq.

Odontoglossum Lawrence Bresson (*Meteor* × *illustrissimum*), from J. Butterworth, Esq.

CULTURAL CERTIFICATE.

To Mr. J. Howes (gr. to Wm. Thompson, Esq.), for a plant of *Masdevallia triangularis*.

At the meeting held on April 15th the members of Committee present were: Rev. J. Crombleholme (in the Chair), Messrs. R. Ashworth, J. J. Bolton, J. C. Cowan, A. G. Ellwood, J. Evans, Dr. Hartley, J. Howes, A. J. Keeling, J. Lupton, D. McLeod, C. Parker, W. Shackleton, P. Smith, H. Thorp, G. Weatherby, and H. Arthur (Secretary).

A Silver-gilt Medal was awarded to R. Ashworth, Esq., Newchurch (gr. Mr. W. Gilden), for a very fine miscellaneous group.

A Large Silver Medal was awarded to W. Thompson, Esq., Walton Grange, Stone (gr. Mr. J. Howes), for a very choice group, a considerable number of plants also receiving awards.

Silver Medals were awarded to Mrs. R. le Doux, West Derby (gr. Mr. J. W. Fletcher), Col. J. Rutherford, Blackburn (gr. Mr. J. Lupton), and Messrs. Hassall & Co., Southgate, for fine groups.

Interesting exhibits were also contributed by W. R. Lee, Esq., Heywood (gr. Mr. C. Branch), O. O. Wrigley, Esq., Bury (gr. Mr. E. Rogers), W. P. Birkinshaw, Esq., Hessle (gr. Mr. J. T. Barker), A. J. Oakshott, Esq., Bidston (gr. Mr. Findlow), and Messrs. A. J. Keeling & Sons, Bradford.

FIRST-CLASS CERTIFICATES.

Odontoglossum Rayonatum (venustum $\times$ Lambeauianum), *O. Rex*, and *O. hololeucum* var. *Regina*, from Wm. Thompson, Esq.

Odontoglossum crispum xanthotes var. *Mount Etna*, *O. Leviathan*, and *Odontioda Zenobia* var. *Leeana* (*Odm. percultum* $\times$ *Oda. Charlesworthii*), from W. R. Lee, Esq.

Miltonia Bleuana Hessle var., from W. P. Birkinshaw, Esq.

AWARDS OF MERIT.

Odontoglossum Nerissa var. *Brunette* (nævium $\times$ crispum), *O. illustrissimum* var. *Babette*, crispum *Prince of Wales* (Raymond Crawshay $\times$ Mundymanum), *Cattleya Schroederæ* var. *Queen Elizabeth*, *Miltonia Hyeana* Walton Grange var., *Odontioda Joan*, *Masdevallia Chamberlainii*, and *Zygopetalum Brewii* Walton Grange var. (*Z. rostratum* $\times$ *Z. Perrenoudii*), from Wm. Thompson, Esq.

Zygocolax Charlesworthii var. *Ashworthiæ*, *Odontioda Queen-Mary* Ashlands var., and *Oncidium Marshallianum* var. *Rossendale*, from R. Ashworth, Esq.

Cypripedium waltonense rubrum, and *Miltonia* Mrs. Geoff. Taite (*Bleuana* $\times$ *St.-Andre*), from Mrs. R. le Doux.

Odontioda Brewii var. *Leeana* (*Odm. Harryanum* $\times$ *Oda. Charlesworthii*), and *Cattleya Brenda* (*C. Dusseldorfii* $\times$ *C. Gaskelliana alba*), from W. R. Lee, Esq.

Odontoglossum Pescatorei *Monica* (*Charlesworthii* $\times$ *Lindenii*), and *O. Perfection*, from Col. J. Rutherford.

CULTURAL CERTIFICATE.

To Mr. E. Rogers (gr. to O. O. Wrigley, Esq.), for plants of *Miltonia Phalænopsis* and *Eulophiella Elizabethæ*.

EPIDENDRUM O'BRIENIANUM SELF-FERTILISED.—Two more seedlings of the batch of self-fertilised *Epidendrum O'Brienianum* (*O.R.*, xxii. p. 108), are now flowering at Kew, and are quite distinct in colour. One has rose-purple flowers with a pale yellow crest, while the other is bright cerise, with a deeper yellow crest. The differences in shape are slight, while as regards habit all the seedlings are, practically speaking, *Epidendrum O'Brienianum* over again.—R.A.R.

RACEMOSE DENDROBIUMS.

UNDER the above heading are included such well-known forms as *Dendrobium chrysotoxum*, *densiflorum*, *Farmeri*, *thysiflorum*, and a few others. These Orchids are among the most beautiful and striking subjects for a Warm house, and under good culture flower profusely, as many racemes are borne for several successive seasons on the back bulbs as well as on the new leads. Their culture is very simple, but several points must be carefully noted.

With respect to temperatures, I find the following give good results: During the growing season keep the house as hot as possible, and during the resting season from 55° to 65° Fahr. In regard to water, it is detrimental to give too much; let the compost become dry between each watering, but free syringing over the leaves during the period of growth is needed. Further, when growth is completed, do not rest the plants as cool or as dry as usually prescribed for such *Dendrobiums* as *nobile* and *Wardianum*, but merely remove the plants to the *Cattleya* house and give water about once weekly. Root disturbance is very harmful, as well as a mass of soil about the roots. Keep them in as small receptacles as possible, and only repot about every three years, using a mixture of *osmunda* fibre and moss, and pot very firmly.

I strongly advocate growing these species throughout the year without *any* shading whatever. This rather surprising mode of culture is of great importance in getting the old bulbs to flower year after year. A proof of this can be illustrated. I have many plants of *D. chrysotoxum* now in bud, in 12-inch pans, bearing 21, 17, 15, 12, and 11 racemes respectively. In one case a very old back bulb, after producing two flower spikes last year, is now bearing three, whilst the young growths for next year will become well matured under the blaze of an August sun. *Dendrobium thysiflorum* also has frequently borne two and three spikes on back bulbs.

Finally, to get the best results, grow the plants as near the roof glass as possible, and in the summer months, to avoid scorching of the leaves, syringe the plants about eight a.m. and again about six in the evening, when the sun's rays will have lost their full force.

Redbourn, Herts.

C. ALWYN HARRISON.

A FOSSIL ORCHID.—Under the title “Notes on Orchids,” and the name “*Antholithes pediloides*, n. sp. (fossil),” Mr. T. D. A. Cockerell describes (*Coult. Bot. Gaz.*, lix. p. 333, fig. 1) a fossil that was collected by Mr. Geo. N. Rohwer in the Miocene shales of Florissant, Colorado. The description

says briefly: "Lip (?) apparently saccate, as preserved coffee-brown, much darker than the shale, a little over 12 mm. long; no venation visible." The object is said to have all the appearance of being the lip of a *Cypripedium*, showing a strong callus around the lateral sinuses, and even, by a dark shade, some indication of the margin of the sterile stamen. Scattered over the surface are round subhyaline spots, which are supposed to represent the work of some insect. Comparison with living *Cypripedium* flowers appeared to confirm the identification. On the other hand, it appears very unlikely that a *Cypripedium* lip would be separated from the rest of the flower and preserved in this manner. Mr. Cockerell thinks we can say with certainty that the object is neither a fruit nor a leaf, but we are not satisfied that the figure shows what is really the lip of a *Cypripedium*, in spite of a certain resemblance, and we should like to know what it was associated with.

The evidence for the existence of Orchids in a fossil state was summarised at p. 129 of our seventeenth volume.

ODONTOGLOSSUM PRÆVISUM.—Two more seedlings of the batch of *O. Lindleyanum* × *gloriosum* (see page 101) are now flowering at Kew, and show rather more of the *O. Lindleyanum* character, the inflorescence not being paniculate, while the blotches on the segments are fewer and larger in size. They agree with the earlier one in shape and in the cirrhate column wings. We have since discovered a second record of a natural hybrid between these two species. In a group of Orchids exhibited by M. Ch. Maron at the Exposition held in May, 1911, at Cours-la-Reine, we find included among a number of *Odontoglossums* an unnamed natural hybrid of *Odontoglossum gloriosum* and *Lindleyanum* (*Journ. Soc. Nat. France*, 1911, p. 320). It would be interesting to know if the plant still exists.—R.A.R.

ONCIDIUM MARSHALLIANUM VAR. ROSSENDALE.—At the meeting of the Manchester Orchid Society, held on April 15th last, an Award of Merit was given to *Oncidium Marshallianum* var. *Rossendale*, which was exhibited by R. Ashworth, Esq., Ashlands, Newchurch (gr. Mr. Gilden). A three-flowered spray has been sent by Mr. Ashworth, together with a fine example of the type. In the var. *Rossendale* the blotches on the petals are suffused into one large chocolate-brown blotch, which occupies fully half their area, and there is a crimson-brown blotch in front of the crest of the lip. The ground colour of the flower is of an exceptionally deep yellow, and it is one of the darkest and most richly-coloured varieties that we have seen. Mr. Ashworth remarks that it flowered out of plants imported about two years ago.—R.A.R.

ODONTOGLOSSUM PRÆSTANS.

THE annexed figure represents a plant of a very rare and interesting Peruvian *Odontoglossum* which flowered in the collection of W. Thompson, Esq., Walton Grange, Stone, a few years ago. The species was originally discovered at the sources of the Marañon River, by Warscewicz, who sent home dried specimens, which were described by Reichenbach in



Fig. 14. *ODONTOGLOSSUM PRÆSTANS.*

1854 (*Bompl.* ii. p. 99). It flowered in the collection of the Rev. J. B. Norman, Whitchurch Rectory, Edgware, in 1875, when Reichenbach remarked: "It was flowered very long since at Tooting with Messrs. Rollisson, who sent it to Consul Schiller." The species is allied to *O. gloriosum*, but has longer and more acuminate segments. The ground colour is greenish-yellow, copiously spotted with light cinnamon-brown. It is said to grow and flower very freely. The species is very rare in cultivation at the present time.

R.A.R.



NEW HYBRIDS.



ODONTIODA FERONIA (Oda. Bradshawiæ × Odm. Edwardii).—Exhibited at the R.H.S. meeting held on April 13th last by the raisers, Messrs. Charlesworth & Co., Haywards Heath, to whom we are indebted for flowers. The plant bore a branching panicle of dark purple flowers, somewhat resembling those of *Odontioda Devosiana*, but with rather longer segments.

ODONTIODA FLAMINGO (Cochlioda Nøetzeliana × *Odontioda Bradshawiæ*).—Raised in the collection of Sir Jeremiah Colman, Bart., Gatton Park, Reigate, by Mr. Collier, and flowered in March last. The colour is orange-scarlet, and it shows a considerable return to the *Cochlioda* parent in the convex shape of the flower, and in having the stigma somewhat divided. It was recorded at page 98.

ODONTIODA LUMINOSA (Oda. Charlesworthii × Odm. Rossii).—An interesting and brightly-coloured hybrid which was exhibited at the meeting of the Manchester Orchid Society held on April 1st last, from the collection of R. Ashworth, Esq., Ashlands, Newchurch, and received a First-class Certificate.

ODONTIODA NEBULA (Oda. chelseiensis × Odm. crispum).—A very promising hybrid, which was exhibited at the R.H.S. meeting held on March 30th last, by Messrs. Flory & Black, Orchid Nursery, Slough (see page 121). It has bright rose-purple flowers, most approaching those of the *Odontioda* parent in shape.

ONCIDIODA WALTONENSIS (Cochlioda vulcanica × *Oncidium incurvum*).—A very interesting hybrid from the collection of W. Thompson, Esq. Walton Grange, Stone, which received an Award of Appreciation from the Manchester Orchid Society on February 18th last. It bore a branching panicle with numerous rose-purple flowers of fairly intermediate shape.

CYMBIDIUM GARNET (C. Lowianum × *Parishii Sanderæ*).—A fine hybrid, raised in the collection of Sir George L. Holford, K.C.V.O., Westonbirt, Tetbury, by Mr. Alexander, and flowered in March last. The inflorescence sent bears five flowers, most like *C. Lowianum* in shape, and having pale yellow segments suffused with light rose, with a zone of deep crimson round the lip, and a paler margin. The crest is very villous.

CYMBIDIUM JASPER (Veitchii × *Parishii Sanderæ*).—A charming hybrid with the same history as the preceding. The inflorescence sent is two-flowered at present, and the sepals and petals are ivory-white, while the lip is slightly more yellow, with some crimson lines in the throat, a light reddish-buff centre, and a few spots on the very villous crest. It should develop into a fine thing.

CYMBIDIUM SEAMEW (I'Ansonii × Parishii Sanderæ).—Another fine hybrid, raised in the collection of Sir George L. Holford, which also flowered in March last. The inflorescence sent is arching, and has seven flowers, most like C. I'Ansonii in shape. The broad sepals and petals are pale yellow, suffused with rose, and the lip bears a few large crimson-brown blotches round the margin, and one central line in front of the very villous keels.



MAXILLARIA ACUTIFOLIA.—A Maxillaria sent to Kew for determination by Messrs. Hassall & Co., Southgate, proves to be the above distinct and attractive species, which originally appeared in 1842. It was described and figured by Sir William Hooker at t. 3966 of the *Botanical Magazine*, from a plant said to have been sent to the Royal Gardens at Kew from Central America by Mr. Barclay, their collector, in H.M. Surveying Ship "Sulphur." It was said to be allied on the one hand to M. tenuifolia, Lindl., and on the other to M. picta, Hook. It still remains rare, but in March, 1896, it was sent to Kew for determination by Messrs. James Veitch & Sons, Chelsea, with the remark that it had been in their houses for some years, and had now flowered for the first time. Nothing was known of its origin. It has also been sent from the Royal Botanic Gardens, Glasnevin. The flowers much resemble those of M. picta, the sepals and petals being deep yellow with some brown mottling, and the lip white with a few purple lines; the leaves, however, are narrower and more elongated, and the pseudobulbs narrower. The column and anther case are deep purple throughout.—R.A.R.



DENDROBIUM NOBILE PELORiate.—Last year we figured from the collection of F. H. Moore, Esq., Royal Infirmary, Liverpool, a remarkable form of Dendrobium nobile, showing normal flowers of D. n. Sanderianum on one side of the bulb, and a peloriate form like D. n. Cooksonianum on the other (*O.R.*, xxii. p. 137). A wish was expressed to know what the flowers were like next year. Mr. Moore now writes: "The plant has flowered again, but normal in character." The preceding year it showed no peculiarity, and other plants of the variety were normal, so that this remarkable case of bilaterality remains unexplained.

It may be remembered that Mr. Moore then alluded to some seedlings raised from D. n. giganteum and one with the purple colour disposed in stripes and blotches on the back of the sepals and petals. The first of them is now blooming, and Mr. Moore sends a couple of flowers, which, as he remarks, show a large and brilliantly-coloured form, but the abnormal colouring has not been transmitted. It would be interesting to hear what other seedlings are like.



ORCHID NOTES AND NEWS.



THE next meeting of the Royal Horticultural Society will be held at the Royal Horticultural Hall, Vincent Square, Westminster, on May 11th, when the Orchid Committee will meet at the usual hour, 12 o'clock noon. The afternoon lecture at 3 o'clock will be given by Mr. W. Bateson, D.Sc., F.R.S., on "Inheritance."

The following meeting is the great Spring Show, to be held at the Royal Hospital Gardens, Chelsea, on Tuesday, Wednesday, and Thursday, May 18th, 19th, and 20th. Class 1 is devoted to Orchids, and Silver Cups and Medals will be awarded at the discretion of the Council. The Davidson Annual Cup will be awarded in Open Competition for the finest variety of *Cattleya Mendelii*. Judging commences at 10 a.m., and the Orchid Committee will meet in the Central Tent at 10.30 a.m. Plants for Certificate must be entered before May 13th. The Show will open at 12 noon on the first day, and at 7 a.m. on the following days, and the hour of closing is 8 p.m. on the first two days, and 6 p.m. on the third day. The Council desires that all groups should be less crowded, and that masses of colour be broken up by the use of green foliage. The staging for Orchids will be nine feet wide, and the front two feet high, and the group may thence rise to an average of nine feet from the ground. This limit does not apply to the foliage plants used as a setting.

The next meeting of the Manchester and North of England Orchid Society will be held at the Coal Exchange, Manchester, on May 13th. The Committee meets at noon, and the exhibits are open to inspection from 1 to 4 p.m. The Annual Meeting will be held in the afternoon of the same day.

At a meeting of the Horticultural Society of New York, held at the American Museum of Natural History, on March 17th, unusually fine displays of cut Orchid blooms were made by Mr. Clement Moore and Lager & Hurrell. The exhibit made by Mr. Moore was very rich in *Cattleya* forms, one of the most interesting being a cross made and reared by himself from *Cattleya Dowiana* × *C. Schrøderæ*. The display of Lager & Hurrell was rich in genera and species.

MR. FRANK READER, who has just completed twenty-five years' service as Chief Cashier to the Royal Horticultural Society, has been presented by the Council with a silver tea service in appreciation of the fact. He has also received presents from the Treasurer, Secretary, and members of the

Staff. Mr. Reader has taken a great part in promoting the welfare of the Society, and his many friends will join us in congratulating him on a well-deserved recognition.

ODONTOGLOSSUM CRISPUM VAR. THE ANGEL.—Respecting the origin of this variety, which was figured at p. 75 of our March issue, Mr. Crawshay writes: "It was sent from the Pacho district by John Carder among some 15,000 others." It is satisfactory to be able to clear up the matter.

LIPARIS BICUSPIDATA.—A very distinct and interesting Bornean Liparis has just flowered in the collection of the Hon. N. C. Rothschild, Ashton Wold, Oundle. It proves identical with one that was collected in Dutch Borneo by A. W. Nieuwenhuis, and was described and figured by J. J. Smith (*Ic. Bogor.*, ii. p. 45, t. 109, fig. 3). It is allied to *L. lacerata*, Ridl., which was imported from British Borneo at the same time (see *O.R.*, xxi. p. 100), but is very different in the details of the lip. In this case there are two narrow, slightly diverging lobes from a rounded base, hence the name. The pseudobulbs are ovoid, of a light reddish colour, and bear a pair of oblong leaves. The raceme is elongate and drooping, with numerous buff-coloured flowers, becoming more red on the lip. Another ally is the Javan *L. biloba*, J. J. Smith. It is interesting to find the plant in cultivation.—R.A.R.

CYMBIDIUM INSIGNE ALBUM.—A very distinct and curious variety of *Cymbidium insigne* was exhibited at the meeting of the Manchester Orchid Society held on April 1st, by Philip Smith, Esq., Ashton-on-Mersey, under the name of *C. insigne album*, and received an Award of Merit. The usual rose-purple blotches on the lip have disappeared, being replaced by indistinct greenish-yellow markings, the rest of the flower being ivy-white. It appeared among a number of imported plants, in the collection of W. Bolton, Esq., Warrington.



ANSWERS TO CORRESPONDENTS.



[Orchids are named and questions answered here as far as possible. Correspondents are requested to give the native country or parentage of plants sent. An ADDRESSED postcard must be sent if a reply by post is desired (abroad, reply postcards should be used). Subjects of special interest will be dealt with in the body of the work].

C.A.—*Gongora leucochila*, Rchb. f.

J.C.—*Vanda coerulescens* var. *Boxallii*, Rchb. f.

M.J.—Orchids do not derive subsistence from the trees on which they grow. The failure must be due to some other cause.

Photograph received, with thanks.—W.M.

Received.—H.G.A., R.G.T., W.M.A. (probably some *Lissochilus*; we will report when they flower), F.H.M. (the plant has not flowered yet), A.H., D.B.C., A. and B., M.E.H. record not yet received), W.G., J.C.B., F. and B. The records are being incorporated.



The Orchid Review

VOL. XXIII.

JUNE, 1915.

No. 270.



OUR NOTE BOOK.



THE Spring Show of the Royal Horticultural Society is the great event of the year, and whether held at the Temple or at Chelsea is the Mecca to which all faithful horticulturists make their annual pilgrimage, and in the past it has almost invariably been favoured with brilliant weather. But the present occasion was a notable exception, for a steady downpour of rain on the first day, and for hours preceding the opening, reduced the grounds to the condition of a quagmire, and the mud outside the big tent was something to be remembered. And even inside there were rivulets and pools to be negotiated, for the rain collected by the roof descended at places in waterfalls, and such planks as were available were quickly requisitioned. Such a condition of things naturally made a difference in the attendance, though it failed to damp the ardour of the enthusiasts, and the large tent was pretty well filled with visitors. Another notable difference was the absence of continental exhibits, for not only were Belgian exhibitors excluded by the war, but Messrs. Sander were totally unable to draw upon the resources of their Bruges establishment. On the second and third days, however, the weather made some amends, for it was fine, and there was some pleasant sunshine; but it was never hot, and the conditions were such that everything remained perfectly fresh right up to the close.

The meeting altogether was held under exceptional conditions, for the war has produced a shortage of labour in many establishments, and the railway facilities were in some cases curtailed. But, in spite of the drawbacks, there was a magnificent show, and the Orchids were quite up to the usual standard of quality, though not quite as numerous as last year, for the size of the large tent was somewhat reduced on this occasion. The trade exhibits were naturally in a majority, but the splendid groups staged by J. Gurney Fowler, Esq., and Sir Jeremiah Colman, Bart., were of the highest quality, and figured high in the award list. In all three Gold

Medals were awarded to Orchid groups, with four Silver-gilt Cups, three Silver Cups, and one Silver Flora Medal, while a Lindley Medal was awarded to a remarkable specimen of *Cœlogyne pandurata*.

Orchids have always been one of the leading features of this Show, and the date was probably a little too early for such an exceptionally late season—at all events we noticed that Auricules were shown in quantity and in fine condition. The date seems to have been creeping back until it has nearly reached the middle of the month, and we have little doubt that but for the Whitsuntide holidays the date would have been fixed a week later. At all events only a week had elapsed since the last ordinary meeting, and there will be a three weeks' interval between the Show and the next meeting. Such a Show entails an enormous amount of preliminary work, and for various reasons the holiday season is quite unsuitable for such a function. We note with satisfaction that the great Summer Show will again fall into its normal month of July.

A full report appears elsewhere, and we will not further anticipate it, though we may find room for the following newspaper cutting obligingly sent by a friend:—

PRICELESS ORCHIDS.

EXHIBITION OF FLOWERS AT CHELSEA.

Many people will doubtless revel in the display of Orchids. Ask to be shown the *Sypropedium Maudii*, a very superb specimen of this beautiful and rare flower. It is easily possible to give 25 guineas for a small pot of Orchids, and some of these aristocrats of the flower world are almost priceless.

It is not overburdened with detail, but it is all that the writer has to say about Orchids, which is confessedly the subject under discussion. And it might almost be taken to represent the vanishing hopes of one who had started out with the idea of forming some little collection in his own back garden. And that advice about "*Sypropedium Maudii*"—we know what he is driving at—would have been more appropriate over a dozen years ago, before the plant had been propagated by the thousand. All unwittingly, however, our reporter has happened on a plant with a history, and we may as well oblige with the story.

Once upon a time—it must have been nearly twenty years ago—a famous collection came into the market, being disposed of through the medium of a well-known firm. One of the plants acquired bore a label stating that the seeds of a cross between two well-known albinos had been

sown on the compost. These albinos were then not more beautiful than they are to-day, but they were much rarer, and rarity always counts. At all events a customer, with an eye to future possibilities, paid a considerably enhanced price for that particular plant. But Orchid seeds, like some others, do not always come up when they are expected to, a thing which happened in this particular case, and the confidence of the purchaser in



Fig. 15. *CYPRIPEDIUM MAUDIÆ*.
(Flowers white and green.)

that record had reached such a low ebb that when complaint was made, and the vendor intimated his willingness to take the plant back at the original price, he was glad to close with the offer.

But this does not finish the story, for very soon after the return of the plant some tiny seedlings began to make their appearance, and they were naturally watched with a good deal of interest. It soon became apparent that they were true albinos like their parents, and it now remained to be proved whether they were hybrids. Some three or four years later the first of them flowered, and proved to be not only intermediate in character but also a plant of great beauty, worthy of receiving a First-class Certificate at Manchester. This point being settled, the flower was kindly forwarded to us, and some years later the vendor favoured us with the story, adding that

it was one of the most profitable plants that ever passed through his hands. More seedlings soon flowered and, incredible as it may appear, this particular hybrid received no fewer than four more First-class Certificates in London and Manchester within the next thirteen months. Is it not all written in the chronicles of the *Orchid Review* !

We have long recognised that hybrids of unrecorded parentage are likely to give trouble as regards their nomenclature, and one such case in our article on the genus *Odontioda* has brought us three separate communications. *O. Goodsoniæ* is there given as one parent of three separate hybrids, although *O. Cooksoniæ* was originally recorded. It is pointed out that *O. Goodsoniæ* was a plant of unknown origin until the appearance of *O. Cooksoniæ*, with a full record of parentage, when comparison showed that the two had a similar origin. This we fully recognise, but *O. Goodsoniæ* had been already recorded and described when *O. Cooksoniæ* appeared, so that it cannot be said that no hybrid between *Cochlioda Noetzliana* and *Odontoglossum armainvillierense* was known when *O. Cooksoniæ* was exhibited. The trouble was that although the hybrid existed its parentage was not known in time to prevent a new name being given. We are quite satisfied that the identity of the two was not known until afterwards, but this fact being established we could only adopt the earlier name.

There have been other cases where the parentage was not given till afterwards. In an earlier revision of *Odontioda* we enumerated four names that had been recorded without parentage (*O.R.*, xix. p. 36), one of which was *O. Lambeauiana*, and it quickly brought the information that the parents were *C. Noetzliana* and *Odontoglossum Lambeauianum*. Unfortunately, in the meantime a plant of this parentage had been certificated and recorded under the name of *O. Corneyana*, and we had so included it in the revision mentioned (p. 35). Yet, on the facts being known, we amended the record, and added (p. 229) "*O. Corneyana* becomes a synonym." It was at once accepted, and the two cases are exactly parallel. It is, of course, unfortunate that really new hybrids should appear without record of parentage, but they do so at times, even in the best regulated establishments, and we do not think it necessary to consign them to oblivion when their history can be afterwards cleared up. The case of names published without either parentage or description is provided for in the rules, and the two cases are not quite identical.

Another interesting question—it is not the only one raised—deserves an article to itself (see page 166).

THE AMATEUR'S COLLECTION.

By C. ALWYN HARRISON.

DURING this and the following months 70° Fahr. should be regarded as the minimum temperature of the *Cattleya* house, and, with the aid of sun-heat, the thermometer will often run up several degrees higher. This will be beneficial to the plants, provided the atmosphere is moist and freely supplied with fresh air.

WATERING.—Growing *Cattleyas* and their hybrids need a good dose of water at every application, but never allow the compost to become sodden, or the roots will die off; also, when watering and spraying, be careful not to allow any water to accumulate at the base of the flower sheaths. A fine sprayer should always be employed for the syringing of the plants. Spraying and the maintenance of a damp and buoyant atmosphere, according to the brightness of the weather, are even more important factors in the cultivation of *Cattleyas* than the direct watering, and if any doubt exists as to whether a plant needs water, delay this until the compost has become moderately dry. Be particularly careful not to over-water newly-potted plants, but their immediate surroundings should be kept well damped, and compost merely sprinkled at intervals until new roots are seen to be pushing.

SHADING.—*Cattleyas* do not need heavy shading. If the roof glass has been thinly stippled, the blinds need only be lowered from about ten a.m. to three p.m. If too heavily shaded the result will be seen in the production of weak sappy growths. Newly-potted plants, and those which are at rest, obviously need somewhat shadier quarters, and where no convenience of a second house exists, the best plan is to have the roller blind made in two strips. In this way, by leaving the blind down longer over one end of the roof glass, this portion can be kept more heavily shaded than the other. In this portion, therefore, keep all newly-potted plants and those which are resting. If *Cypripediums* are grown in the same house, they must occupy the shady side, whilst the lighter end should be reserved for those plants which are maturing their bulbs.

Such *Cattleyas* as *aurea*, *gigas*, *Hardyana*, and *speciosissima* are often not to be found thriving in amateur's houses. The usual fault is found in that the plants do not receive sufficient light. To enable these to finish their growths and to push up their flower spikes a stronger light is needed than given to the other varieties. I find a shelf quite near the roof glass an ideal position, giving water to each plant's need and liberal spraying overhead.

As any species or hybrids finish flowering they may be repotted, if

requiring it. Generally speaking, the species rest for a few weeks before emitting fresh roots, and should not be hurried or disturbed until then, but the hybrids, and especially those of complex parentage, often begin to push new roots even before the flowers expand, and therefore should be repotted as soon as the blossoms have faded.

THE MECHANISM OF HEREDITY.

GREAT issues, scientific and economic, centre round the mechanism of heredity, or why like produces like, and the explanations that have been put forward to explain why the various forces involved work out in the particular way they do are, as a correspondent very well puts it, both numerous and bewildering. The question is raised by a hybridist, and it takes the form as to the cause of partial reversion, or the transfer almost unaltered, after the lapse of a generation, of certain characters from a given parent to its hybrid offspring. Some phases of the question were discussed in our last volume, in connection with the remarkable amount of variation seen in *Cattleya Sibyl* (pp. 265-269, fig. 31), and we may now attempt to carry the question a little further.

In former days the belief was almost universal that species reproduced their own particular characters unaltered from generation to generation. It was regarded as a law of nature, like the law of gravitation, and this was probably the chief reason why hybridists and their productions were regarded with such particular aversion. It was thought to be sheer presumption to attempt to interfere with the laws of nature in such a way. This, however, is a digression. Even in those early days a few inquiring minds had begun to speculate as to the way in which all the parts of an organism were reproduced with such marvellous fidelity, though nothing engaged much attention until the publication of Darwin's *Origin of Species*, when that author wrote: "The laws governing inheritance are for the most part unknown." But Darwin had been meditating on the question, and some years later gave to the world his theory of Pangenesis, which we may give in his own words:—

PANGENESIS.—It is almost universally admitted that cells, or the units of the body, propagate themselves by cell-division or proliferation, retaining the same nature, and ultimately becoming converted into the various tissues and substances of the body. But besides this means of increase I assume that cells, before their conversion into completely passive or "formed material," throw off minute gemmules or atoms, which circulate freely throughout the system, and when supplied with proper nutriment multiply

by self-division, subsequently becoming developed into cells like those from which they were derived. These gemmules for the sake of distinctness may be called cell-gemmules, or, as the cellular theory is not fully established, simply gemmules. They are supposed to be transmitted from the parents to the offspring, and are generally developed in the generation which immediately succeeds, but are often transmitted in a dormant state during many generations and are then developed. Then development is supposed to depend on their union with other partially developed cells or gemmules which precede them in the regular course of growth. . . . Gemmules are supposed to be thrown off by every cell or unit, not only during the adult state, but during all the stages of development. Lastly, I assume that the gemmules in their dormant state have a mutual affinity for each other, leading to their aggregation either into buds or into the sexual elements. Hence, speaking strictly, it is not the reproductive elements, nor the buds, which generate new organisms, but the cells themselves throughout the body. These assumptions constitute the provisional hypothesis which I have called Pangenesis.—Darwin, *Animals and Plants under Domestication*, ii. p. 374.

The collection of formative gemmules from every part of the organism to form a germ plasm was only put forward as a provisional hypothesis, and, although highly ingenious, was soon shown to be out of harmony with the behaviour of reproductive cells, the nucleus of which was shown to be derived from the vegetative nucleus by a special process, to be presently described. At that time, however, so little was known about the organisation of the reproductive cells that probably no other explanation was possible, and Darwin himself remarked: "Pangenesis does not throw much light on hybridism, but agrees well with most of the ascertained facts."

It is now known that the nuclei of an organism all owe their origin to the nucleus of a previous generation, and that nuclear development takes place by a process of indirect division (called karyokinesis). This process, in its essential features, is alike in all the higher plants and animals, a fact which shows its antiquity. The nucleus of the vegetative cell consists of a fine network of fibres, and a definite number of bodies, called Chromosomes, which go through a series of complex changes, ultimately resulting in the transverse division of each chromosome, after which the separated halves are drawn to the two ends of the original cell, this being followed by the production of a new cell wall. This continued division of the nucleus and the production of new cells is the basis of all vegetative growth. The process is somewhat complicated, but Strasberger remarks that it seems necessary in order to effect an equal division of substance between the two daughter nuclei.

We now come to the development of the reproductive cells, the essential

of which is that cells of two kinds are produced, which agree in having only half the normal number of chromosomes, and are incapable of developing further until a process has taken place by which the original number of chromosomes has been restored. In the simplest forms of water plants the two kinds of sexual cells are borne separately, and unite by a process of conjugation, the male cells being ciliated and reaching the female by swimming, when the nuclei of the two cells fuse together, and form the initial stage of the new organism. From this simple stage they proceed through a process of ever-increasing complexity to the production of pollen and ovules, culminating in such floral complexities as are seen in the most highly specialised Orchids. Through all multitudinous ramifications there is a purpose. They are adaptations which have been brought about under changing conditions by means of the evolutionary process, which has secured the survival of beneficent variations. And they are largely connected with the habits of their insect guests.

But whatever the complexity by which the union of the sexual cells is brought about, the subsequent process is identical, and the two conjugating nuclei each bear their own half of the hereditary qualities. This is well seen in the case of hybrids, where nuclei from two parents bearing a number of distinct characters combine to form a complete blend, whereby what is termed an intermediate hybrid is produced. When the hereditary qualities of the two cells are alike, as in the case of normal fertilisation by pollen from the same species, this character of the union is not obvious, and all that is seen is the stimulus which the act of fertilisation gives to the development of a new individual. It nevertheless carries with it a multitudinous series of events that can best be imagined from the remarkable behaviour of a batch of secondary hybrids such as those with which we are already familiar. The case of *Cattleya Sibyl* has already been mentioned, and several striking examples in the genus *Odontioda* and others have been described. Little as is certainly known about the process this much may be said, that they are controlled by the ramifications of the nucleus in the germ plasm.

This is only the briefest possible summary of the processes involved, and it shows that the characters of the each sexually-formed individual are derived from a mixture of two individually distinct germ plasms in the act of fertilisation. It also shows where Darwin's highly ingenious hypothesis of Pangenesis fails, but it does not exclude the idea of the existence of formative gemmules developed in another way. Nor yet does it follow that the two germ plasms which unite are themselves immune from all external influences. It is certain that there is a progressive development of new characters, otherwise evolution would not be possible. But this and the question of reversion must be left for a future article.

HYBRID DISAS.

THE appearance of the handsome *Disa Blackii*, for which Messrs. Flory & Black received an Award of Merit at the Chelsea Show (see p. 133) calls attention to a very beautiful group of hybrids which have become rare



Fig. 16. *DISA PREMIER*. 17. *D. GRANDIFLORA*. 18. *D. KEWENSIS*.
 Fig. 19. *D. LANGLEYENSIS*. 20. *D. VEITCHII*. 21. *D. TRIPETALOIDES*.

in gardens, four of which are shown in the annexed illustration, with two of the original parents, the third parent, *Disa rosea*, having brilliant rose-purple flowers, was not available.

D. VEITCHII (fig. 20), raised in the establishment of Messrs. James Veitch & Sons, by Mr. Seden, was the earliest of the series, and received

a First-class Certificate from the R.H.S. in June, 1891, on its flowering for the first time, this event occurring within twenty-one months after the seed was sown. It was derived from *D. racemosa* × *grandiflora*, and most resembles the seed parent, both in shape and colour, though the flowers are more than twice as large. It was afterwards also raised by Messrs. Backhouse & Sons, of York.

D. KEWENSIS (fig. 18) was raised at Kew by Mr. Watson, and flowered for the first time in May, 1893, only eighteen months after the seed was sown, and thus established a record for quickness of flowering. It was obtained by crossing *D. grandiflora* with the pollen of *D. tripetaloides*, and most resembles the latter in shape, but the flowers are over twice as large, and the colour rose-pink, with a paler dorsal sepal, bearing numerous darker spots inside.

D. LANGLEYENSIS (fig. 19) was raised independently both by Messrs. James Veitch & Sons and at Kew, flowering in both establishments in May, 1894. It was shown by Messrs. Veitch, and received an Award of Merit from the R.H.S. It was raised both from *D. racemosa* crossed with the pollen of *D. tripetaloides* and from the reverse cross, and most resembles the former in shape and colour.

D. PREMIER (fig. 16) was raised at Kew, flowering for the first time in October, 1893, when it received a First-class Certificate from the R.H.S. It was the earliest secondary hybrid, and was obtained by crossing *D. tripetaloides* with the pollen of *D. Veitchii*. It has flowers of fairly intermediate shape, but most like the latter in colour.

D. DIORES, the result of recrossing *D. Veitchii* with the pollen of *D. grandiflora*, was raised by Messrs. James Veitch & Sons, and flowered in July, 1894, when we were favoured with the first flower, and its history was given at page 239 of our second volume. It was most like *D. grandiflora* in general character, but paler in colour, and we learnt afterwards that it had a weak constitution and was soon lost. *D. Clio*, obtained in the same establishment from the reverse cross, flowered in August, 1898, and received an Award of Merit from the R.H.S. (*O.R.*, vi. p. 287).

D. WATSONI was raised at Kew from *D. kewensis* recrossed with *D. grandiflora*, and has flowers nearly twice as large as in the first parent, which it otherwise most resembles. In fact it was at first named *D. kewensis superba* (*Gard. Chron.*, 1900, i. p. 54), but afterwards *D. Watsoni* (*O.R.*, viii. p. 247).

D. LUNA (*racemosa* × *Veitchii*) was also raised by Messrs. Veitch, and flowered in May, 1902, receiving an Award of Merit from the R.H.S. It is most like *D. Veitchii* in general character, and seems to have the best constitution of the series. It was shown in quantity at the last Holland House Show by Messrs. Flory & Black (see p. 244 of our last volume).

D. ELWESII was raised in the collection of H. J. Elwes, Esq., Colesborne, Glos., it is believed from *D. kewensis* × *Veitchii*, and was described at p. 219 of our eleventh volume. It is most like *D. kewensis*, but shows a considerable improvement on that parent.

D. BLACKII (*Luna* × *grandiflora*) is the last of the series, and its history will be found at p. 185.

The two species shown in our illustration are *D. grandiflora* (fig. 17) and *D. tripetaloides* (fig. 21), the latter a pretty little plant having white flowers dotted with pink on the dorsal sepal, which we have not seen alive for several years. Many of the hybrids are also excessively rare if not quite lost, probably because they require somewhat special treatment. They may exist somewhere, in which case we should like to hear of them, for their beauty cannot be called in question.

CALENDAR OF OPERATIONS FOR JUNE.

By W. H. WHITE, for many years Orchid Grower to the
late Sir Trevor Lawrence, Bart., K.C.V.O.

NOW that so many Orchids are in flower, it is advisable to caution both owners and growers against the too frequent practice of allowing the spikes to remain on the plants too long a time, also of allowing small weakly plants to over-flower themselves. Those who have been interested in Orchid culture, even for a short time, will have noticed how prone some of the plants are to flower after they have got into such a debilitated state that they have neither strength nor stamina left to push either new growths or roots. Such plants should have their flower spikes removed immediately they appear. As regards freshly-imported specimens that are not properly established, particularly the smaller plants, also young seedlings that are about to flower for the first time, the grower will naturally be anxious to see the blooms, hoping that something especially good will appear. In such cases it is advisable to leave just one or two flowers to determine the variety, and when this is known to cut the spike immediately, and then give the plants a rest, afterwards gradually starting them into growth, the sole object being to get them thoroughly established, and the smaller pieces strong enough to bear, without distress, large spikes of flowers of good size and substance. In the case of large healthy imported specimens, it undoubtedly conduces to the future health of the plant if the spikes are not allowed to remain until shrivelling of the bulbs takes place.

Well-grown plants of *Odontoglossum crispum*, with its numerous varieties, also *O. Pescatorei* and many hybrids, frequently send up large spikes of bloom, but on no account should spikes be allowed to remain on

too long, or the plant may be permanently injured. These remarks are especially applicable to such *Oncidiums* as *O. varicosum*, *Marshallianum*, *Forbesii*, *crispum*, *curtum*, the warm-growing *O. ampliatum*, *stelligerum*, and many others, which often produce very large, many-branched spikes of bloom. It may not be out of place here to mention that undoubtedly many thousands of these plants have been irretrievably ruined through over-flowering. It should be remembered that Orchids in glass-houses are grown under artificial and unnatural conditions, and are therefore quite unable to bear the strain of flowering as they do in their native habitats.

Plants of *Cattleyas* and *Lælias* that are not well rooted suffer considerably if allowed to carry their flowers too long, but perhaps no class of Orchids loses so much in appearance by over-flowering as *Aërides*, *Vanda*, *Saccolabium*, *Angræcum*, *Renanthera*, &c. When such plants have lost a number of their lower leaves from this cause, it is necessary not only to take their flower spikes out immediately they appear, for one or two seasons, but also to give them, the whole year round, more generous treatment, which should mean less exposure to sunlight, less air, and more atmospheric moisture. Many Orchids are also injured when in flower by removing them from their proper temperatures to a dry and draughty greenhouse, frequently termed the Orchid flowering house. Young growers should always bear in mind that vigorous growth in every plant is the thing to accomplish. Carefully avoid over-flowering, which is undoubtedly antagonistic to the future welfare of the plants, and many rare and valuable plants can be saved either by removing the flower spikes immediately they show, by thinning the buds out, or by cutting the spikes as soon as the flowers are open. These flower spikes, if stood in a Cool, or Intermediate house, with their stems in water, will, in most cases, retain their beauty for any reasonable length of time.

WARM-GROWING CYPRIPEDIUMS.—In the East Indian house many of the *Cypripediums* have recently been in bloom, and as soon as they have recovered from the effects of flowering, and new growths are pushing up, let each plant be examined to see if additional pot-room is necessary. None of these plants should be left for long in a pot-bound condition, and now is a good time to repot them. Fill the pots to about one-third full of crocks, and use a compost of good fibrous yellow loam, *osmunda* fibre—cut up rather finely, so that it may be better incorporated with the loam than when used in a rough, coarse state—and chopped sphagnum moss in equal proportions, adding small crocks in sufficient quantity to keep the soil porous. Mix these materials well together, and pot each plant with moderate firmness. For a few weeks after repotting keep the surface of the compost just moist, but when the plants are re-established afford abundance of water, and at all times keep the plants on the shady side of

the house. During the growing season, whenever the weather is bright and warm, these *Cypripediums* delight in having their foliage gently sprayed over with clear, tepid soft water, but care should be taken with regard to such species as *C. Stonei*, *Rothschildianum*, *Parishii*, *præstans*, and others of that section, that no water lodges or remains low down in the centre of the growths or axils of the leaves, as they are very liable to decay from this cause.

THUNIAS.—Of plants now in bloom may be mentioned the *Thunias*, which are very attractive, the fresh green foliage setting off the fine arching flower spikes to excellent advantage. The following species and hybrids are well worth adding to any collection, and are always valuable for exhibition purposes: *T. Marshallii*, *T. Bensoniæ*, *T. candidissima* (pure white), *T. Veitchii*, and *T. Brymeriana*. As these plants pass out of flower they should be removed to a cool, airy house, where they may receive uninterrupted sunlight. They will finish up and consolidate their growths in an early Vinery or Peach house, where the fruit is colouring, provided the foliage overhead is not too dense. The plants should still be well watered each time the soil becomes dry, and so long as the leaves remain green, but when they commence to change colour the supply should be gradually withheld. Any plants that have missed flowering, and their stems are growing to an unreasonable length, should have the points of the shoots pulled out, and the plants subjected to the same treatment as those that have bloomed.

Thunias may be readily propagated during this month by taking off the old back stems nearly down to their base, cutting them off at the joints into lengths of about four to six inches, and inserting them firmly as cuttings into small, well-drained pots, using a mixture of chopped sphagnum and coarse silver sand. When the new shoots begin to push out grow them along as quickly as possible in strong heat. When subjected to a very dry atmosphere during their resting season the leaves of *Thunias* frequently become infested with red spider, but it is easily kept in check by occasionally laying the plants down on their sides, and syringing them with a hot solution of soft soap and water, adding a little of the XL All insecticide, and allowing it to dry on. Afterwards give them a good hard syringing with clean rain water.

DENDROBIUMS.—Many of the divided pieces of *Dendrobiums* that were potted in the spring into small pots have their growths now well advanced, and these from their base are making large numbers of new roots. If any of these plants have filled their pots with roots, now is a good time to repot them. Do not disturb the roots or compost more than is unavoidable, but carefully turn them out of their pots, place them into larger ones, and fill the space around the ball with chopped osmunda fibre. After repotting,

the plants should not be allowed to become too dry at the root, or the young growths may receive a check and finish up prematurely, and then recommence to grow when they should be at rest. Dendrobiums whose flowers were fertilised in the early part of the year are fast swelling their seed capsules, and should, therefore, be well elevated up to the roof glass. The capsules should be tied upright to neat sticks, so that each part of the pod may obtain its full share of the light.

DECIDUOUS CALANTHES.—Plants of the different varieties of *Calanthe vestita* and those of the *C. Veitchii* section are now growing vigorously, and the well-rooted plants need to be plentifully supplied with water, but to those that are not yet well established, water must still be afforded with care. Where a quantity of these plants is cultivated, it is a good practice to look over them occasionally and select all those that have filled their pots with roots, that they may be placed together and treated to alternate waterings of liquid cow manure. Previous to using this liquid it should be strained through a very fine sieve, or piece of muslin, as if used in a coarse state the surface of the soil soon becomes so clogged that it is difficult to ascertain whether the plants are wet or dry. Do not apply the stimulant too strong at first, about one gallon to three gallons of water will be sufficient for the first three or four waterings, but afterwards it may be given in equal proportions. Keep the plants as near to the roof glass as is convenient in order to obtain stout bulbs and strong flower spikes. The old back bulbs of these *Calanthes*, which were placed in sphagnum moss when the growing plants were repotted, should now have their new growths sufficiently well advanced to be attended to. Place them in small pots, and use the same kind of compost as advised in a former Calendar for the older examples. Young *Calanthe* seedlings that are making their first growth should be carefully and lightly sprayed over whenever the soil appears to be in the least dry.

EVERGREEN CALANTHES and PHAIUS.—Such evergreen *Calanthes* as *C. veratrifolia*, *Masuca*, *Dominii*, &c., also the closely allied *Phaius* *P. Wallichii*, *Blumei*, *grandifolius*, *Cooperi*, &c., with the distinct hybrids *P. Cooksonii*, *Norman*, *Chapmanii*, *Marthæ*, *Ashworthianus*, *Phaiocalanthe Colmaniae* and *Arnoldiae* may be repotted as growth commences. All these evergreen *Calanthes* and *Phaius* being free, strong rooting plants, require large pots, and these should be about one-third filled with crocks, over which a thin turfy loam should be placed. The compost should consist of fibrous yellow loam and chopped *osmunda* fibre in equal parts, adding moderate quantities of leaf soil, coarse silver sand, and broken crocks. Pot each plant with moderate firmness, but not so hard as to prevent water passing freely through the compost, allowing about $\frac{1}{2}$ inch of space below the rim of each pot to permit of efficient watering. These plants grow

fairly well in the Intermediate house, but if a moist corner of the *Cattleya* house could be spared the few extra degrees of heat would be beneficial to them. In either division the plants should be kept well shaded from all strong sunshine, and in a position where they may obtain a moderate amount of fresh air daily.

The distinct *P. simulans* is a warm-growing plant, and needs a moist shady corner of the hottest house. It is a plant that appears to attract small yellow thrips. These tiny insects frequently obtain a foothold low down in the young growths before the grower is aware of their presence in the house. It is therefore necessary that immediately the new growths commence to unfold their leaves they should be closely examined daily, and should any make their appearance the vaporiser should be employed for their destruction, or the growths may be periodically immersed in some safe insecticide. Owing to the rambling habit of this species it is somewhat difficult to make it conform to pot treatment. A long, narrow teakwood basket is quite suitable, and should have a few large pieces of crock placed over the bottom so as to prevent the soil from passing through. Over the drainage place a thin layer of sphagnum moss, and pot the plant firmly in some coarse osmunda fibre, filling up closely and firmly to the rhizome with fresh growing heads of sphagnum moss. Keep the surface of the compost moist at all times, and a slight dewing overhead whenever the weather is warm will conduce to strong flowering growths, and also check the attacks of insect pests.

CYMBIDIUMS.—Such species as *C. eburneum*, *C. insigne*, *C. Tracyanum*, *C. grandiflorum*, *Lowianum*, and var. *concolor*, also the distinct hybrids *C. Doris*, *eburneo-Lowianum*, *Ballianum*, *Colmaniae*, *Alexanderi*, *Pauwelsii*, *Schlegelii*, *Gottianum*, &c., should be included in every collection, the plants being particularly suitable for exhibition purposes, also for indoor decoration, and the flowers lasting a long time after being cut. At the present time the majority have passed their flowering stage, and if a plant requires more rooting space it may safely be repotted, but it is not advisable to disturb them by repotting oftener than is really necessary. The old and well-known *C. Lowianum* generally flowers best when in a pot-bound condition. When repotting the plants, afford them sufficient space for several season's growth.

Cymbidiums, being strong deeply-rooting plants, should be grown in rather large pots. These should be about one quarter full of drainage materials, and for the compost use good fibrous turfy yellow loam, and osmunda fibre chopped up rather small in equal parts, with a little chopped sphagnum moss, a good sprinkling of small crocks, and coarse silver sand. Mix the whole together thoroughly. If the loam be of inferior quality a moderate quantity of leaf soil added would be beneficial. In repotting,

press the compost down with moderate firmness and leave sufficient space below the rim of the pot to contain a quantity of water, for the plants will require abundant supplies after they have become thoroughly well rooted. Place them in a cool, shady position in the Intermediate house, and until new roots become plentiful afford water to each plant with great care. If large quantities of water be given before the plants become properly established in the new compost, the old roots will be sure to decay prematurely, the new growths become weakly and damp off, and the young foliage become spotted. Keep their surroundings moderately moist at all times. This may be done by damping well between the pots several times daily.

Other *Cymbidiums* that are not so well known as those previously mentioned, and which will grow under similar conditions are *C. longifolium*, *ensifolium*, *aloifolium*, *chloranthum*, *pendulum*, *madidum*, and many others. *C. (Cyperorchis) affine*, and *C. elegans* may also be included. *C. Devonianum* is quite a distinct species, especially as regards its flower spikes, which are pendulous, and, being of dwarf habit, the plant should be elevated well up to the roof glass. *C. tigrinum* is also a dwarf-growing species. It prefers the Cool house in summer, but in winter should be removed to the Intermediate division.

COOL HOUSE.—In this house many plants are in flower at present, including the useful *Odontoglossum crispum*, and its numerous varieties and hybrids; also many *Odontiodas*, *Cochliodas*, *Oncidiodas*, &c., &c. For the present it is advisable not to damp down too frequently or too heavily, as the flowers would be liable to become spotted and useless. A moderate damping at early morning, when the weather is fine, and in the evening will be sufficient, leaving the ventilators open both at top and bottom. When the flower spikes have been removed the plants will not require nearly so much water at the roots, but while at rest the pseudobulbs should not be allowed to shrivel unduly for want of water, although a slight shrinkage will do them no harm.

OPHRYS KELLERI.—A new hybrid *Ophrys* is described and figured by Col. M. J. Godfrey in the May issue of the *Journal of Botany* (p. 121, t. 538). It was found on March 24th, 1914, among a small colony of *Ophrys arachnitiformis* on a thinly wooded hillside of the Mont des Oiseaux, at Hyeres. It is suggested as a hybrid between this species and *O. atrata*, as it possesses intermediate characters, and the latter is frequent in the neighbourhood. It is named in honour of Dr. G. Keller, of Aarau, Switzerland, who is preparing an illustrated work on the Orchids of Europe. The plate also contains a figure of *O. olbiensis*, Camus, a hybrid between *O. bombyliflora* and *O. Scolopax*.

ANGULOA CLOWESII.

THOUGH not the original species of the genus, *Anguloa Clowesii* was the first to flower in cultivation, and is still the most attractive, on



Fig. 22. *ANGULOA CLOWESII*.

account of its clear bright yellow flowers, which recall those of a large tulip, hence it is sometimes known as the Tulip Orchid. It was originally introduced from the province of Merida by M. J. Linden, and flowered in

the collection of the Rev. John Clowes, Broughton Hall, Manchester, in March, 1844, when it was described and figured by Lindley (*Bot. Reg.*, xxx. p. 66, t. 63). It succeeds well under Cool treatment, in a compost of turfy loam and peat, in well-drained pots, in fact under pretty much the treatment given to *Lycaste Skinneri*. The flowers come up with the young growths. It is a good exhibition plant, and several plants of it were shown at the recent Chelsea Show. The one here figured was grown at Kew.

SOCIETIES.

ROYAL HORTICULTURAL.

THE meeting held at the Royal Horticultural Hall, Vincent Square, Westminster, on May 11th, falling, as it did, only a week before the great Spring Show at Chelsea, was rather a small one so far as Orchids were concerned, and only a single medal was awarded, together with a Cultural Commendation and two Awards of Merit.

Orchid Committee present: J. Gurney Fowler, Esq. (in the Chair), Sir Jeremiah Colman, Bart., Sir Harry J. Veitch, Messrs. J. O'Brien (hon. sec.), R. Brooman White, A. Dye, G. Hunter, J. Cypher, J. E. Shill, T. Armstrong, H. G. Alexander, R. A. Rolfe, F. J. Hanbury, Pantia Ralli, W. Cobb, F. M. Ogilvie, and J. Wilson Potter.

H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood), staged a fine group of Orchids, containing *Anguloa Clowesii*, *Renanthera Imschootiana*, *Bifrenaria Harrisoniæ*, *Zygopetalum Cecil-Rhodes*, *Oncidium superbiens* and *insculptum*, *Cœlogyne corrugata* and two examples of *C. Dayana*, *Cypripedium glaucophyllum*, *Cymbidium Sappho* (*Lowianum* × *I'Ansonii*), examples of *Odontoglossum crispum* and *Pescatorei*, a richly-coloured *O. harvengtense* (*triumphans* × *crispum* var. *Abner Hassall*), *Odontioda Goodsoniæ*, and some good *Cattleyas* and *Miltonias*.

Walter Cobb, Esq., Normanhurst, Rusper (gr. Mr. Salter), sent *Cattleya Mossiæ Harlequin*, having the flowers curiously flecked with purple.

Leopold de Rothschild, Esq., Gunnersbury House, Acton (gr. Mr. Hudson), sent a form of *Cattleya Dusseldorfii Undine*, in which the front lobe of the lip was particularly well developed.

R. G. Thwaites, Esq., Chessington, Streatham (gr. Mr. Hannington), sent a good plant of *Odontoglossum Meredithiæ* (*Rossii* × *venustulum*), bearing a spike of four rosy-pink flowers, the sepals being well-blotched with chocolate-brown, and the crest of the lip yellow.

AWARDS OF MERIT.

LÆLIOCATTLEYA ANACONDA (L.-c. *Pallas* × *C. Dowiana Rosita*).—A

very fine hybrid, bearing two racemes and six flowers, the sepals and petals deep golden-yellow, the latter suffused and veined with rose, the front of the lip deep claret-red, and the tube buff with some darker lines. Exhibited by Baron Bruno Schröder, The Dell, Englefield Green (gr. Mr. Shill).

LÆLIOCATTLEYA FASCINATOR-MOSSIÆ VAR. *IMOGENE* (L.-c. *Fascinator alba* × *C. Mossiæ Reineckeana*).—A beautiful white form, having the front lobe of the lip suffused with purple and margined with white, and the throat deep yellow. Exhibited by Messrs. Flory & Black, Orchid Nursery, Slough.

CULTURAL COMMENDATION.

LÆLIOCATTLEYA ANACONDA.—To Mr. J. E. Shill, grower to Baron Bruno Schröder, for excellent culture of the plant mentioned above.

THE CHELSEA SHOW.

THE Great Spring Show was held in the grounds of the Royal Hospital, Chelsea, on Tuesday, Wednesday and Thursday, May 18th, 19th and 20th, and produced a magnificent display of Orchids. The plants occupied the stages at the two ends of the large tent, and were arranged in undulating banks and dells, producing a very charming effect. The general quality of the exhibits was excellent, and the number of brilliantly-coloured *Odontiodas* indicates the rapid progress that is being made in developing this remarkable race of garden Orchids. Novelties, however, were less numerous than usual. The Orchid Committee awards consisted of three First-class Certificates and nine Awards of Merit, while a Lindley Medal was awarded to an exceptionally well grown species of *Cœlogyne pandurata* staged by Messrs. Armstrong & Brown. Other Orchid awards included three Gold Medals and eight Cups.

Orchid Committee present: Sir Harry J. Veitch (in the Chair), Sir Jeremiah Colman, Bart., Messrs. J. O'Brien (hon. sec.), W. Thompson, R. A. Rolfe, Clive Cockson, Walter Cobb, F. J. Hanbury, T. Armstrong, W. P. Bound, Stuart H. Low, W. Bolton, R. Brooman-White, A. Dye, S. W. Flory, H. J. Chapman, Pantia Ralli, W. H. White, F. M. Ogilvie, H. G. Alexander, F. Sander, and Gurney Wilson.

J. Gurney Fowler, Esq., Brackenhurst, Pembury (gr. Mr. Davis), staged a large and effectively arranged group of well-grown plants, to which a Gold Medal was awarded. At the back was a fine mass of *Cœlogyne Dayana*, bearing numerous graceful spikes, while on each side were two masses of the pendulous *Cattleya citrina*, the many bright-yellow flowers showing up well against the glaucous green foliage. The front was made up of an undulating arrangement of well-grown Orchids, in which we noticed numerous brilliant *Læliocattleyas*, forms of *Cattleya Mossiæ* and *Mendelii*, several *Phaius bicolor*, *Brassocattleya Veitchii splendens*, *Cœlogyne pandurata*, a lot of *Miltonia vexillaria*, with three good forms of

M. Charlesworthii, M. Bleuana, and a few M. Roezii, Cymbidium tigrinum, Eulophia scripta, the richly-coloured Sophrocattælia Hon. Mrs. Barbara Wilson, a few Cypripedium niveum, and numerous others. Among the numerous Odontoglossums we noted a fine example of the striking O. crispum Solum, the chaste O. c. virginale and various blotched forms, and a good O. illustrissimum, while Odontioda was represented by a richly coloured O. Madeline, O. Coronation Fowler's var., O. Charlesworthii, and



Fig. 23. ODONTOGLOSSUM CRISPUM SOLUM.

a number of other brilliantly-coloured forms. The group was very effectively arranged with moss and Maidenhair Ferns, and was much admired.

Sir Jeremiah Colman, Bart., Gatton Park, Reigate (gr. Mr. Collier), staged a very handsome group, to which a Silver-gilt Cup was awarded. Striking features in the group were the number of scarlet Odontioda Bradshawia, and a lot of well-grown botanical Orchids, which were set up on a bank of moss at the front so as to bring them well up to the eye. At the back was a fine lot of Odontoglossum Thompsonianum, bearing a

profusion of long graceful spikes, various *Cymbidiums*, a finely grown *Cœlogyne Dayana* with many pendulous spikes, and others, these being supported by numerous well-grown *Cattleyas*, *Læliocattleyas*, *Odontoglossums*, *Odontiodas*, and others. We noted some good *Cypripedium Lawrenceanum* and *C. callosum Sanderæ*, *Cattleya Skinneri* Temple's var., a particularly large and richly-coloured form, many good *Odontoglossum crispum*, white and blotched, the rich yellow *Phaius Ashworthianus*, the striking *Zygopetalum rostratum*, *Cymbidium Lowianum* concolor, *Cœlogyne Lawrenceana*, *Sophrocatlælia Marathon*, *Maxillaria Sanderiana*, the brilliant orange-red *Dendrobium arachnites* with many flowers, a well-flowered example of the violet-blue *D. Victoria-Regina*, *Saccolabium ampullaceum*, *Masdevallia marginella*, *Houtteana*, *caudata*, *trichæta*, *xipheres*, *ephippium*, *Ajax*, *Courtauldiana*, and a profusely-flowered *M. O'Brieniana*, *Lycaste cruenta*, *Stelis parvula* covered with bloom, *Cirrhopetalum robustum*, *Octomeria diaphana*, *Saccolabium gemmatum*, *Physosiphon Loddigesii*, and a remarkable *Bulbophyllum* with a long reddish spike having the flowers concealed under five rows of bracts (*B. pentastichum*, Rolfe). The numerous hybrids were for the most part raised in the collection, and the whole group showed excellent culture and very tasteful arrangement.

F. M. Ogilvie, Esq., The Shrubbery, Oxford (gr. Mr. Balmforth), sent a plant of the handsome *Odontoglossum Harwoodii* Shrubbery var., and *O. Black-Michael*, a very fine hybrid, having very broad segments, heavily zoned with blackish purple on a white ground.

G. W. Bird, Esq., Manor House, West Wickham, sent a good plant of the handsome *Odontioda Gladys*.

Messrs. Charlesworth & Co., Haywards Heath, staged a particularly fine group of well-grown plants, to which a Gold Medal was awarded. The centre consisted of a number of *Oncidium Marshallianum* in a setting of *Miltonia vexillaria*, a very pleasing combination, while on either side were two depressions containing some showy *Cattleyas*, *Odontiodas* and *Odontoglossums*, backed by *Oncidium phymatochilum* with a profusion of its graceful flowers, *Cœlogyne Dayana*, *Cymbidiums*, *Epidendrums*, &c., the ends being formed of showy *Læliocattleyas*, *Cattleyas* and other things, many of them raised in the establishment. The *Odontoglossums* were excellent, and included some beautiful home-raised *O. crispum*, *O. c. xanthotes* with two fine racemes, *O. c. citrinum*, a particularly fine thing with a cluster of deep yellow blotches on the sepals and lip, *O. Pescatorei* virginale, *O. hastilabium*, *O. cordatum aureum*, *Odontioda Brewii*, and fine forms of *O. Bradshawiæ* and others. We noted also a very fine *Brassocatlælia Veitchii*, the rare *Schomburgkia Wallisii* with a fine spike, some good *Cattleya Skinneri*, *C. Schilleriana illuminata*, a richly coloured form,

C. Dusseldorfii Undine, *Læliocattleya Fascinator-Mossiæ* and many others, *Lælia purpurata Lewisii*, white with a few dark lines in the throat, *Masdevallia Pourbaixii* and *M. Shuttryana Chamberlainii*, *Restrepia guttulata*, *Cypripedium Mastersianum*, *Cœlogyne tomentosa*, *Phalænopsis Lueddemanniana*, *Zygopetalum Charlesworthii*, a handsome form of *Miltonia Charlesworthii*, and others, the whole group showing excellent culture and effective arrangement.

Messrs. Sander & Sons, St. Albans, staged a large and very rich group, which also gained a Gold Medal. It was banked up in the centre with the scarlet *Renanthera Imschootiana*, *Odontoglossums*, *Cymbidium insigne* and *Pauwelsii*, *Epidendrum O'Brienianum*, and a lot of *Dendrobium thyrsiflorum*, while on either side were many of the bright purple *Læliocattleya Hyeana*, showy *Cattleyas* and *Brassocattleyas*, some good *Oncidium pulchellum*, *Odontiodas*, and some home-raised *Miltonia vexillaria*, the var. *William Thompson* being one of the largest and most richly-coloured forms yet seen. In front were a row of *Trichopilia Backhouseana* and a number of interesting botanical Orchids. Among good things noted were a plant of *Lycaste gigantea* with seven flowers, the deep green *L. Locusta*, *Odontoglossum Goodsonii* and other fine hybrids, *Dendrobium cariniferum* and senile, *Warscewiczilla discolor*, *Zygopetalum Perrenoudii*, *Lycaste Deppei*, the fine *Maxillaria Fletcheriana*, *Miltonia vexillaria* G. D. Owen, *Angræcum Leonis*, *Cœlogyne Parishii*, *integerrima*, and a pretty form nearly allied to *C. Sanderæ*, *Promenæa xanthina*, *Luisia amesiana*, *Ione siamensis*, and numerous other showy and botanical things, which we have not space to enumerate.

Messrs. Armstrong & Brown staged a large and excellent group, to which a Silver-gilt Cup was awarded. The centre consisted of numerous *Læliocattleyas* and *Brassocattleyas*, with spikes of *Odontoglossum Royal-Purple* above, while the two end elevations consisted largely of *Odontoglossums*, with numerous scarlet *Odontiodas* at the two corners. In front were many seedling *Odontoglossums* of great promise. Interesting plants noted were examples of *Cattleya Gratrixiæ alba* (*Mendelli alba* × *Mossiæ Wageneri*), *C. O'Brieniana alba*, *C. Skinneri alba*, *C. Mendelii Michael*, white with the front of the lip rich purple, *Lælia purpurata Lewisii*, white with slight purple lines in the throat, fine forms of *Læliocattleya Aphrodite*, *Fascinator* and *George Woodhams*, batches of *Cypripedium Lawrenceanum Hyeantum* and *C. callosum Sanderæ*, *Odontoglossum crispum Lusitania*, *O. Epicasta*, *Miltonia Hyeana* and some good *M. vexillaria*, the pretty little *Odontioda Aspasia* (*Odm. Vuylstekei* × *C. sanguinea*), *O. wickhamiensis*, brilliant forms of *O. Bradshawiæ* and *Charlesworthii*, &c., while in front was a row of the pretty little *Dendrobium crepidatum*. The group was tastefully set up with ferns and light foliage plants.

Messrs. Flory & Black, Orchid Nursery, Slough, staged a particularly effective group to which a Silver-gilt Cup was awarded. Its particular feature was a crescent-shaped depression, the mossy banks being planted with *Cypripedium niveum* and *bellatulum* and several forms of *Anæctochili*. This was backed up by an irregular bank of showy Orchids in which the leading plants were staged so as to show up their special features, the whole arrangement being very effective. We noted some good forms of *Læliocattleya Ballii*, L.-c. *callistoglossa magnifica* with five superb flowers, L.-c. *Fernand-Denis*, the richly-coloured L.-c. *Fascinator Langley* var. with seven beautiful flowers, L.-c. *Teucra* var. *Mrs. Mary Stokes* (L.-c. *Martinetii* × *C. Mossiæ*), with carmine-rose flowers of great beauty, a beautiful L.-c. *Schrøderæ*, *Brassocattleya Veitchii*, B.-c. *Thorntonii Euphemia*, with two large white flowers of excellent shape, *Odontoglossum crispum Ethel* and *Joan*, two prettily-blotched forms, *O. Cooksoniæ* var. *Ruby* (*percultum* × *armainvillierense*), a good *O. Wilckeanum*, a very fine *Brassocatlaelia Veitchii*, and other good things.

Messrs. J. & A. McBean, Cooksbridge, also received a Silver-gilt Cup for a very rich group, in which scarlet *Odontiodas* were staged with fine effect. In the centre was a well-flowered *Odontocidium Edwardatum*, supported on each side by the fine *Oncidium McBeanianum*, *O. Marshallianum*, and several good *Cymbidiums*, and these again by many excellent *Odontoglossums*, *Cattleya Mossiæ* and *Mendelii*, and *Læliocattleya Aphrodite*, with several good *Miltonia St.-Andre* in front. We noted a good plant of *Anguloa Clowesii*, *Oncidium Gardneri* and *pulchellum*, *Odontoglossum apterum candidulum*, *O. crispum xanthotes*, a very fine *O. amabile*, *O. Hyeaenum*, *O. eximium Beaute-Celeste*, a fine white, with a zone of large brown blotches on the segments, *O. crispum Matterhorn*, *Cattleya Mossiæ Wageneri*, *C. Mendelii striata*, *C. Dusseldorfii Undine*, and other good things.

Messrs. Stuart Low & Co., Jarvisbrook, Sussex, staged a very effective group, to which a Large Silver Cup was given. The centre consisted of a cluster of *Oncidium Marshallianum*, with *Dendrobium thyrsiflorum* and *Phalænopsis amabilis* on each side, two fine plants of *Arpophyllum giganteum* with numerous spikes of rosy flowers, some good *Cattleyas*, *Miltonia vexillaria* and *Odontoglossums* in front, while at the ends were masses of scarlet *Renanthera Imschootiana*. Among interesting things noted were the rare *Vanda Charlesworthii*, several *V. cœrulescens*, some good *Cattleya Mendelii*, the var. *Princess Mary* having fourteen charming blush pink flowers, *C. Dusseldorfii Undine*, *C. intermedia cœrulea*, *Brassolælia Jessopii*, *Lycaste Deppei*, *Cymbidium Schrøderi* and *Devonianum*, several *Dendrobium Brymerianum*, *Lycaste gigantea*, *Oncidium Gardneri* and *Kramerianum*, some fine *Læliocattleyas*, a number

of *Odontiodas* and *Odontoglossums*, and a very charming form of *Sophrocattleya Thwaitesii*, having light scarlet sepals and petals, a dark yellow tube to the lip, and a deep rosy-crimson front lobe.

Messrs. James Cypher & Sons, Cheltenham, staged a very elegant group on the ground level at the end of the tent. Across the centre ran a low arch, surmounted by a feathery palm, while from the sides depended the graceful spikes of *Phalænopsis amabilis*, *Dendrobium thyrsiflorum*, *Oncidium Marshallianum*, and other Orchids. The corners of the group were somewhat elevated, while the intervening space in front and behind was filled with an undulating series of Orchids and graceful foliage in a very artistic arrangement. We noted *Dendrobium Wardianum* and *Jamesianum*, a brilliant lot of *Læliocattleya Hyeana* and *Renanthera Imschootiana*, *Cattleya Mossiæ*, *Mendelii* and *Schroëderæ*, *Cœlogyne pandurata*, *Bletia Shepherdii*, *Masdevallia Veitchiana* and *Houtteana*, *Calanthe veratrifolia*, *Vanda tricolor*, *Miltonia vexillaria*, *Odontioda Lambeauiana*, and others, *Cypripedium Lawrenceanum*, *Epidendrum Boundii* × *xanthinum*, with some fine *Odontoglossum Pescatorei*, *crispum*, and other species, in well-grown examples. A Silver Cup was awarded to this artistic group.

Messrs. Mansell & Hatcher, Rawdon, East Yorks., staged a rich and varied group, to which a Standard Cup was awarded. The centre bank consisted of some good *Cattleyas*, *Læliocattleyas*, *Odontoglossums*, and other Orchids, with depressions on either side, and two elevated stands of *Miltonia vexillaria* in front. There were masses of *Renanthera Imschootiana* arranged with white *Odontoglossums*, some good *Miltonia Hyeana*, examples of the graceful *Odontoglossum citrosum*, the rare *O. ramulosum*, *O. Edna* (*armainvilleriense* × *Rossii*), a very fine *O. Phœbe*, *O. Rosalind* (*Wiganianum* × *amabile*) well dotted with brown on a yellow ground, and many other good hybrids, the rare *Kefersteinia lamellosa*, *Cattleya Dusseldorfii* *Undine*, *Cirrhopetalum Collettii*, *Lycaste Deppei*, *Polystachya pubescens*, *Oncidium cucullatum* and *Gardneri*, *Epidendrum virens*, *Cypripedium Psyche* and *niveum*, *Trichopilia Backhouseana*, and some brilliant *Odontiodas*, of which *O. ornata* var. *Enchantress* (*Odm. Pescatorei* × *Oda. Vuylstekeæ*) was a particularly beautiful form, *O. Sunbeam* (*Vuylstekeæ* × *Lambeauiana*), a very pretty flower marked with salmon-red on a rosy ground, while five forms of *O. Atalanta* (*Odm. amabile* × *Oda. Charlesworthii*) showed the most remarkable amount of diversity.

Mr. H. Dixon, Spencer Park Nursery, Wandsworth, received a Silver Flora Medal for a fine group, including good examples of *Lælia purpurata*, *Oncidium leucochilum* and *phymatochilum*, *Dendrobium Wardianum*, some good *Cattleya Mossiæ*, *C. Mendelii virginale*, a pretty blush-white

form, *Masdevallia ignea*, *Miltonia vexillaria*, *Cymbidium Lowianum* concolor and insigne, well-flowered plants of *Sophronitis grandiflora*, *Cypripedium niveum*, *Odontoglossum Thompsonianum*, *eximium*, *Jasper*, *luteopurpureum*, and some good *O. Pescatorei* and *crispum*.

DAVIDSON CUP.

The Davidson Cup, offered for the best *Cattleya Mendelii* in the Show, was awarded to F. Menteith Ogilvie, Esq., The Shrubbery, Oxford, for C. M. Queen Mary, a charming white variety with a slight flush of rose in front of the light yellow disc.

LINDLEY MEDAL.

A Lindley Medal was awarded to Messrs. Armstrong & Brown, Tunbridge Wells, for a magnificent specimen of *Cœlogyne pandurata* bearing three exceptionally long spikes, two of them each with sixteen and the other thirteen flowers, an example of good culture which we have never seen equalled.

FIRST-CLASS CERTIFICATES.

LÆLIOCATTLEYA SIBYL LOW'S VAR. (*C. Mendelii* × *L.-c. Dominiana*).—A superb hybrid, the flowers being large and of excellent shape, and having the sepals and petals tinged with rose and veined with purple, while the front of the broad lip is purple-crimson, and the crest white and yellow. Exhibited by Messrs. Stuart Low & Co.

LÆLIOCATTLEYA TRANSYLVANIA (*L.-c. Leonora* × *C. Enid*).—A very handsome hybrid, having large flowers of excellent shape, and the colour rose-purple with a deep purple-crimson lip. Exhibited by J. Gurney Fowler, Esq.

ODONTIODA COLMANIÆ (*Oda. Bradshawiæ* × *Odm. hybrid*).—A superb hybrid of quite a new type, with flowers of *Odontoglossum* shape, and deep yellow in colour, covered with large scarlet-red blotches. It is suggested that the second parent may have been something of the *O. Queen of Gatton* type.

AWARDS OF MERIT.

CATTLEYA TITYUS VAR. *REX* (*Octave-Doin* × *Enid*).—A very fine form of perfect shape, having light rose-coloured sepals and petals, the front lobe of the lip purple-crimson, and the disc yellow. Exhibited by Messrs. Flory & Black.

DISA BLACKII (*Luna* × *grandiflora*).—A vigorous and handsome hybrid, most like the latter in colour, but larger and approaching *D. Veitchii* in shape. There were about ten flowers on the two spikes, with rose-purple lateral sepals and much paler dorsal. Exhibited by Messrs. Flory & Black.

LÆLIOCATTLEYA GOLD-STAR (*L.-c. Ariel* × *C. Mendelii*).—A charming hybrid, bearing an inflorescence of six deep golden-yellow flowers, with a claret-coloured front to the lip. Exhibited by Messrs. Sander & Sons.

LÆLIOCATTLEYA HELIUS (L.-c. *Ballii* × *C. Mossiæ Wageneri*).—A very handsome hybrid, having large deep yellow flowers with a claret-red centre to the lip. Exhibited by Messrs. J. & A. McBean.

MILTONIA HYEANA VAR. *F. M. OGILVIE* (*Bleuana Stevensii* × *vexillaria G. D. Owen*).—A charming hybrid bearing its first flower, which was blush white, with a rosy base to the petals, and a large solid dark claret-red mask at the base of the lip. Exhibited by F. Menteith Ogilvie, Esq.

ODONTIODA LAMBEAUIANA VAR. *NELLIE* (*C. Nøetzeliana* × *Odm. Lambeauianum*).—A very beautiful hybrid, having particularly broad segments, and the colour dark rose-red, with a yellow crest to the lip. Exhibited by Messrs. Flory & Black.

ODONTOGLOSSUM AGLAON ORCHIDHURST VAR.—A very fine form, bearing a spike of large and handsome flowers, heavily blotched with chocolate-purple on a white ground. Exhibited by Messrs. Armstrong & Brown.

ODONTOGLOSSUM CRISPUM QUEEN OF THE BELGIANS.—A most beautiful hybrid, representing the second generation of selected *crispum* crosses, and having flowers quite circular in shape, and the broad segments white, slightly suffused with rose and heavily blotched with purple. Exhibited by Messrs. Charlesworth & Co.

ODONTOGLOSSUM PRINCESS MARY (parentage unrecorded).—A very fine thing, bearing a compact spike of seventeen flowers, heavily blotched with cinnamon-brown on a blush-white ground. It is a derivate of a blotched *O. crispum*, but under which particular hybrid it must rank as a variety is at present uncertain. Exhibited by J. Gurney Fowler, Esq.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

At the meeting held at the Coal Exchange, Manchester, on April 29th, the members of Committee present were: Rev. J. Crombleholme (in the Chair), Messrs. R. Ashworth, J. Cypher, A. G. Ellwood, J. Evans, A. Hanmer, Dr. Hartley, J. Howes, A. J. Keeling, J. Lupton, C. Parker, W. Shackleton, P. Smith, H. Thompson, H. Thorp, G. Weatherby, and H. Arthur (Secretary).

A Large Silver-gilt Medal was awarded to R. Ashworth, Esq., Newchurch (gr. Mr. Gilden), for a very fine miscellaneous group.

Silver-gilt Medal was awarded to W. Thompson, Esq., Walton Grange, Stone (gr. Mr. Howes), for a fine group, including a large number to which certificates were awarded.

A Large Silver Medal was awarded to Col. J. Rutherford, M.P., Blackburn (gr. Mr. Lupton), for a fine group of *Odontoglossums*, *Cattleyas*, &c.

Silver Medals were awarded to Messrs. Cypher & Sons, Cheltenham, to the Liverpool Orchid & Nursery Co., Gateacre, and to Messrs. A. J. Keeling & Sons, Bradford, for fine groups.

A Bronze Medal was awarded to F. A. Hindley, Esq., Bradford, for a small group, including *Lycaste cruenta* and *Dendrobium nobile virginale*.

Interesting exhibits were sent by A. J. Oakshott, Esq., Bidston (gr. Mr. Findlow), Mrs. R. le Doux, West Derby (gr. Mr. Fletcher), Messrs. J. & A. McBean, Cooksbridge, and Mr. W. Shackleton, Bradford.

FIRST-CLASS CERTIFICATES.

Cœlogyne burfordiensis (*pandurata* × *aspersa*), *Odontioda Irene waltonensis* (*Oda. Uroskinneri* × *Oda. Charlesworthii*), and *O. illustris* (*Odm. illustrissimum* × *Oda. Charlesworthii*), from Wm. Thompson, Esq.

Odontioda Princess Mary, from A. J. Oakshott, Esq.

Læliocattleya McBeaniana (*C. Schroëderæ* × *L. anceps Schroëderiana*), from Messrs. J. & A. McBean.

AWARDS OF MERIT.

Odontoglossum Invernium (*Doris* × *Ossulstonii*), *O. Phocis* (*Phœbe* × *Solon*), *O. Epicastum* (*Clytie* × *crispum*), *illustrissimum Walton Grange* var., *Miltonia Charlesworthii* var. *Orpheus* (*Hyeana* × *vexillaria Constance*), and *M. Eurydice* (*Hyeana* × *Phalænopsis*); *Odontioda Diana magnifica* and *O. Graireana Walton Grange* var.; *Cattleya Mossiæ* var. *Mammoth*, and *Brassocattleya Joan*, all from Wm. Thompson, Esq.

Odontoglossum Black Dragon (*Pluto* × *Black Prince*), *Odontioda Brewii* var. *Black Knight*, and *Miltonia Bleuana albens*, all from R. Ashworth, Esq.

Cattleya Mossiæ Mrs. Bernal Bagshaw, from Mrs. R. le Doux.

Odontoglossum amabile Twilight, from Col. J. Rutherford, M.P.

Odontioda Vivienne var. *H. Worsley* (*Odm. crispum* × *Oda. Goodsoniæ*), and *Lycaste lanipes*, both from Messrs. A. J. Keeling & Sons.

CULTURAL CERTIFICATE.

Mr. J. Howes, gr. to Wm. Thompson, Esq., for a plant of *Masdevallia Kimballiana*.

At the meeting held on May 13th, the members of Committee present were: Rev. J. Crombleholme (in the Chair), Messrs. J. C. Cowan, J. Cypher, J. Evans, A. Hanmer, Dr. Hartley, J. Howes, J. Lupton, D. McLeod, F. K. Sander, W. Shackleton, H. Thorp, G. Weatherby, and H. Arthur (Secretary).

Silver Medals were awarded to R. Ashworth, Esq., Newchurch (gr. Mr. W. Gilden), and to W. Thompson, Esq., Walton Grange (gr. Mr. J. Howes), for good miscellaneous groups.

Interesting exhibits were staged by Mr. Philip Smith, Esq., Ashton-on-Mersey (gr. Mr. Thompson), Col. J. Rutherford, M.P., Blackburn (gr. Mr. J. Lupton), O. O. Wrigley, Esq., Bury (gr. Mr. E. Rogers), A. J. Oakshott, Esq., Bidston (gr. Mr. C. Findlow), H. Bell, Esq., Garstang (gr. Mr.

Hardy), Messrs. A. J. Keeling & Sons, Bradford, and Mr. W. Shackleton, Bradford.

FIRST-CLASS CERTIFICATE.

Odontoglossum Vulturina (*Vuylstekeæ* × *triumphans*), a fine flower, of solid dark chocolate colour, with bright yellow tips to the sepals and petals, from P. Smith, Esq.

AWARDS OF MERIT.

Odontoglossum polyxanthum Walton Grange var., and *O. Hermione*, from Wm. Thompson, Esq.

Læliocattleya Fascinator-Mossiæ var. *Imogene* and *Odontoglossum eximium* var. *Captain Turner*, from Col. J. Rutherford, M.P.

Miltonia Princess Victoria Garstang var., from Henry Bell, Esq.

CULTURAL CERTIFICATE.

To Mr. C. Findlow, gr. to A. J. Oakshott, Esq., for a plant of *Odontioda Bradshawiæ*, carrying a spike of 78 fully expanded flowers; also a Bronze Medal to the gardener. It was a fine example of cultural skill, and was much admired.

The annual general meeting was held at 2.30 p.m., the Rev. J. Crombleholme presiding, when the balance-sheet was adopted and officials were appointed. Thanks were accorded to the following gentlemen who so kindly subscribed to the fund to cover cost of paintings:—The Rev. J. Crombleholme, Messrs. R. Ashworth, J. J. Bolton, J. Cypher, J. Evans, A. Hanmer, Dr. Hartley, A. J. Keeling, W. R. Lee, W. Shackleton, P. Smith, W. Thompson, Z. A. Ward.

The prizes were presented to the successful exhibitors in the different competitions as follows:—

R. Ashworth's Cup, to Col. J. Rutherford, M.P.; gardener's prize to Mr. J. Lupton.

J. J. Bolton's Gold Medal to Wm. Thompson, Esq.; gardener's prize to Mr. J. Howes.

J. J. Bolton's Silver-gilt Medal, to R. Ashworth, Esq.; gardener's prize to Mr. W. Gilden.

Botanic Society of Manchester's Gold Medal, to R. Ashworth, Esq.

Charlesworth's Cup, to Wm. Thompson, Esq.; gardener's prize to Mr. J. Howes.

Cypher's Gold Medal, to R. Ashworth, Esq.; gardener's prize to Mr. W. Gilden.

Evans' Silver Trophy, to R. Ashworth, Esq.; gardener's prize to Mr. W. Gilden.

Hanmer's Cup, to R. Ashworth, Esq.; gardener's prize to Mr. W. Gilden.

Smith's Gold Medal, to Wm. Thompson, Esq. ; gardener's prize to Mr. J. Howes.

Society's Gold Medal, to Z. A. Ward, Esq.

Society's Gold Medal, to F. A. Hindley, Esq.

A number of prizes have been offered for competition during the coming session, due notice of which will be given ; and it is hoped that gentlemen will send their exhibits as usual, to keep up the interest in the Society.



MINUTE BULBOPHYLLUMS.



MANY years ago the late Baron Ferdinand von Mueller, Director of the Melbourne Botanic Garden, wrote an article entitled "The smallest Orchid in the World" (*Gard. Chron.*, 1879, ii. p. 817), which may be summarised as follows :—

More than twenty years ago the late Mr. W. S. McLeay showed the writer a very minute creeping Orchid from the vicinity of Port Jackson, highly remarkable for its extremely small disc-like leaves. The little plant in Mr. McLeay's conservatory was at the time not in flower, nor could subsequently any flowers be obtained, as the plant seems to have been lost. He told me, however, that he had examined it in a flowering state, and had found it to be a *Dendrobium*. The plant was lost sight of until very recently Mr. Fawcett rediscovered it at the Richmond River, and forwarded fruiting specimens. At my request this zealous investigator of the Richmond River vegetation secured at last the flowers of this pigmy plant, which prove it to be a true *Bulbophyllum*, to which the name *B. minutissimum* is now given. The leaves are sessile, on a creeping rhizome, often forming bead-like series. The leaves are orbicular, flat, horizontal, and only one-eighth or one-sixth of an inch in diameter. Thus this Orchid has the smallest leaves of all in the whole order. Indeed, seeing the plant creeping among the mosses, the observer might take it for a species of the *Hepaticæ*. The flowers are singly produced on peduncles hardly longer than the leaves, while the wee red flowers measure also only one-sixth of an inch. The affinity of this *Bulbophyllum* is with *B. lichenastrum*, but its dimensions are much less, and the disc-like leaves are thinly cartilaginous and adnate in the centre.

In a subsequent note (*l.c.* 1880, i. p. 790), an extract from a letter detailed the circumstances of its discovery by Mr. McLeay: "I obtained it in a ravine at the back of Rushcutters Bay, Port Jackson, where it was growing on sandstone boulders in moss, almost within the reach of the drip from the overhanging rocks above. The locality has since been desecrated by the march of suburban improvements."

Not long afterwards a note appeared by Mr. N. E. Brown under the title "The smallest Orchid known" (*l.c.*, 1880, ii. p. 598), in which it was pointed out that *B. minutissimum* was not exactly the smallest Orchid in the world, for a smaller species of the same genus was discovered some years previously by Dr. Beccari in Sarawak, Borneo (Beccari, No. 431), which is about one-third smaller than *B. minutissimum*. The habit is the same, *i.e.*, like a small chain of green discs; but whilst in the Australian plant the pseudobulbs are orbicular, and bear their very minute scale-like leaves on the top in the centre, in the Bornean plant the pseudobulbs are oblong, and the minute ovate-acute leaves are given off at the side. The largest leaf measured is $\frac{3}{4}$ line long and $\frac{1}{2}$ line broad. He added that there were now three of these minute species of *Bulbophyllums* known, all alike in habit—*B. moniliforme* (Burma), *B. minutissimum* (Australia), and Dr. Beccari's Bornean plant, which is the least of the three, for although it has larger leaves than *B. minutissimum*, yet a pseudobulb and its expanded leaf of the Bornean plant will comfortably lie upon a pseudobulb of *B. minutissimum* in the same relative space of development, and leave room to spare.

The Bornean species has since been briefly described under the name of *B. Odoardi*, Rchb. f. & Pfiz. (*Engl. Pflanzenfam.*, ii. pt. 6, pp. 179, 180, fig. 190 C), being placed in a distinct section, called *Odoardiana*, while a section called *Minutissimæ* is established for *B. minutissimum*. The flowers of *B. Odoardi* are not known, but the two plants are so closely similar, down to the hispid capsules—which are larger than the leaves and bulbs—that it is probable the first-named section will have to be abolished. *B. minutissimum* has been well figured from life by Fitzgerald (*Austral. Orch.*, ii. pt. 2), and has rosy flowers with darker stripes and a dark rose margin to the lip. Fitzgerald remarks that the locality where *B. minutissimum* was originally discovered is now in the heart of Sidney.

R.A.R.



ORCHID NOTES AND NEWS.



TWO meetings of the Royal Horticultural Society will be held at the Royal Horticultural Hall, Vincent Square, during June, on the 8th and 22nd, when the Orchid Committee will meet at the usual hour, 12 o'clock noon. These are the dates fixed for the two Masters Memorial Lectures, by Dr. C. J. Russell, D.Sc., the subject being "Recent Investigations on the Subject of Plant Food in the Soil." Sir John D. Llewellyn, Bart., will preside on each occasion. The hour is 3 p.m.

The following meeting is the Great Summer Show, to be held at Holland House, Kensington, on Tuesday, Wednesday, and Thursday, July 6th, 7th, and 8th. Judging commences at 10 a.m., and the Orchid Committee will meet half an hour later. The Show will open at 12 o'clock noon. Silver Cups and Medals will be awarded according to merit. Entries close on June 22nd. The Coronation Challenge Cup will be awarded by the Council to what, in their opinion, is the most meritorious exhibit in the Show (excluding the winners of the two preceding years).

The Manchester and North of England Orchid Society will hold meetings at the Coal Exchange, Manchester, on June 3rd and 17th. The Committee meets at noon, and the exhibits are open to inspection from 1 to 4 o'clock p.m. The following meeting is fixed for July 8th.

Several interesting mementos of the recent Chelsea Show appear in the last two issues of the horticultural press. The *Gardeners' Chronicle* figures *Cattleya citrina* in Mr. J. Gurney Fowler's group, the fine group staged by Messrs. J. Cypher & Sons, and the handsome *Læliocattleya* Sibyl Low's var., and the *Gardeners' Magazine* has *Odontoglossum crispum* Queen of the Belgians, *Odontioda Lambeauiana* var. Nellie, and *Læliocattleya* Gold-Star. Messrs. Cypher's artistic group seemed to catch the eye, for we find illustrations also in the *Garden* and the *Journal of Horticulture*.

The death is announced at Toronto, Canada, on May 5th, of Mr. E. T. Cook, for several years Editor of *The Garden*, and Honorary Secretary of the Horticultural Club. Some years ago he went to Canada, where he assisted in the formation of the National Rose Society of Canada, of which he was elected first president.

THE FLORA OF UGANDA.—At the house dinner of the Horticultural Club held at the Hotel Windsor on May 11th, under the presidency of Sir Harry J. Veitch, a very interesting lecture, illustrated by lantern slides, was given by Mr. M. T. Dawe, F.L.S., on his "Botanical Travels in Uganda." After a brief outline of the history of Uganda from a botanical standpoint, Mr. Dawe pointed out that although our knowledge extends back for over fifty years it is only during the last fifteen years that we have acquired a knowledge of the flora as a whole, and that much still remains to be done. The position of Uganda is east-central, and it has affinities with all the surrounding regions, but the plants of the tropical rain forests show a remarkable affinity with the West African coast flora, some of which extend right across the continent. There were many interesting Orchids, including the remarkable *Angræcum infundibulare*, which had been

introduced to cultivation, and which was formerly only known from West Africa. The illustrations showing the vegetation and incidents of his travels were particularly interesting.

We much regret to hear of the death, on May 21st, of Mr. George Hunter, for several years gardener and Orchid grower to His Grace the Duke of Marlborough, at Blenheim. An obituary notice will appear next month.

ORCHID PORTRAITS.

OUR readers will not have failed to notice the absence of the list of Orchid Portraits, which has been a feature of the Review ever since its commencement, from our last two issues. Its object has been to collect the scattered figures of Orchids that appear in horticultural periodicals, so that they can be readily found by means of the annual Index. Its compilation has always been attended with considerable difficulty, but the number of repetitions has become so great that we doubt whether it is worth the trouble, and such figures will doubtless be included in the proposed re-issue of Pritzel's *Iconum Botanicorum*, which the R.H.S. has long been contemplating, and to which attention was again drawn by Mr. H. J. Elwes at the last annual meeting. The very magnitude of the subject is no doubt the principal cause of delay, and it becomes a question whether in view of the difficulty of the undertaking some kind of selection may not have to be attempted. Another difficulty is the question of synonymy, for it is well known that many important old figures are not under the names under which they would now be looked for, particularly in the case of Orchids. We believe that the whole matter is under consideration.

ANSWERS TO CORRESPONDENTS.

[Orchids are named and questions answered here as far as possible. Correspondents are requested to give the native country or parentage of plants sent. An ADDRESSED postcard must be sent if a reply by post is desired (abroad, reply postcards should be used). Subjects of special interest will be dealt with in the body of the work].

X. —The correct name is *Cattleya Mossiæ* var. *Wagneri* (not *Wagneri*). It was originally discovered by the collector *Wagner*, in the province of *Merida*, and was described under the name of *C. Wagneri* before it was found to be the albino form of *C. Mossiæ*.

W.B. — *Vanda suavis*, Lindl.

J.F.S. — *Bifrenaria Harrisoniæ*, Lindl.

F.T.P. — *Dendrobium crepidatum*, Lindl. We will report on the other later.

G.R. — Shall be dealt with next month.

Owing to the pressure on our space through the shows, other matters must stand over until next month.



The Orchid Review

VOL. XXIII.

JULY, 1915.

No. 271.



OUR NOTE BOOK.



THE article on "Minute Bulbophyllums" (pp. 189-190) reminds a correspondent of the remarkable characters of an Orchid collection, and one that was more obvious in olden days than at present, namely, the enormous number of plants that can be successfully grown in a small house. In the early days there were collectors of Orchids who prided themselves on the varied character of their collections, which at that time often consisted of a large assemblage of species, and were grown quite as much because of their absorbing interest as for their mere showiness, and they adopted all manner of quaint devices in order to accommodate their pets. They were grown in all kinds of receptacles; pots, baskets, and shells, and on blocks of wood, and suspended from the roof in crowds, besides filling the stages almost to overflowing, so that to an outsider an Orchid house presented the strangest sight imaginable. And there were many interesting little plants in cultivation in those days that are now seldom seen, except in a few botanical collections, but even then an Orchid that could have been accommodated on a block of the size of a penny-piece would have been something of a novelty.

Epiphytic Orchids are often specially adapted to these quaint methods of culture. Many of them grow on branches of trees, and in a few cases their habit of growing sideways or even pendulous has become persistent, and many of the smaller species never exceed a few inches in height and succeed best at a moderate distance from the roof glass. They do not, as a rule, require a great amount of compost, and suitable atmospheric conditions seem to be the most important point in their successful culture. This can be secured by a properly balanced condition of the heating, damping, shading, and ventilating of the house. Some care, however, is necessary that the plants on the stages do not suffer from drip from those above, or the young growths are sure to damp off, and the loss of the plant would probably follow. A proper amount of moisture is essential, but the use of

a sprayer, with the damping of the floors and staging as often as necessary, will do much to reduce the amount of direct watering required.

Such a collection forms a never-failing source of interest, for the plants are of the most varied aspect, and there is always something in bloom. Such plants can easily be grown on into specimens without taking up too great an amount of space, and it is when grown in this way that their quaint beauty is seen to best advantage, for many of them are very floriferous, and the number of flowers often makes up for what some of them lack in size. The latter quality, however, is not always wanting, for in some of them the flowers seem quite disproportionate to the size of the plants. In shape, and in the way that they are produced, the flowers are of the most varied description, and there are resemblances to insects and other quaint objects that are often very striking, while the range of colour to be seen among them, and the exquisite beauty of the markings is unrivalled in any other group of plants.

It is true that the enormous development of hybridisation has pushed these unobtrusive little species somewhat into the background, but more of them are grown than appear at our shows, and their aggregate number in collections must be considerable. The remark that they are not often imported now-a-days applies almost as much to Orchids generally, for very few collectors now visit the tropics with a sort of roving commission in search of novelties. They now devote their energies to producing them at home, and with considerable success, though the work naturally extends over a more limited field, and there are fewer surprises than when Orchid importing was at the height of its popularity. And the decline in importing is naturally accompanied by a reduction in the number of what are called botanical Orchids, a term used somewhat indiscriminately for Orchids that are not generally grown, without much reference to their individual beauty.

The Orchid novelties of the world have not yet been nearly exhausted. Of this we have plenty of evidence, and there are many species known to science that have not yet been imported, or that have been quickly lost because of difficulties attendant on their culture. Here we are face to face with one of the difficulties, for it is of little use importing Orchids that cannot afterwards be grown, however attractive they may otherwise be. Orchids grow naturally under a very wide range of natural conditions, and one has to select such as can be grown with success, especially if the number of houses is limited. In a single house one must either neglect the warm or the cooler-growing species.



ORCHIS HYBRIDA.



SPIKES of a very beautiful natural hybrid Orchis have been sent to Kew by Mr. George Reuthe, F.R.H.S., Fox Hill Hardy Plant Nursery, Keston, Kent. They were collected in Bavaria two years ago, where the parent species, *O. purpurea* (fusca) and *O. militaris* grow together. They belong to a plant whose hybrid origin was recognised many years ago, for we find it recorded in 1830 by Reichenbach as *Orchis hybrida*, Boenningh. (*Fl. Germ. Excurs.*, p. 125), with the remark that it is intermediate between *O. militaris* and *O. fusca*, and is perhaps a hybrid between them. It was found at Kalkhugeln, near Munster, Bohemia. But it has a much earlier history, for it was figured by Jacquin about 1786 (*Ic. Pl. Rar.*, iii. p. 16, t. 598) under the name of *O. militaris*. The mistake was pointed out in 1844, by Godron (*Fl. Lorraine*, iii. p. 33), and was then called *O. Jacquinii*, a rare species near *O. fusca*. *O. hybrida* was apparently unknown to him. A year later *O. Jacquinii* was made a variety of *O. fusca*—var. *stenoloba* (*Coss. & Germ. Fl. Env. Paris*, p. 550), and under this name it was afterwards figured by Reichenbach (*Fl. Germ.*, xiii. p. 31, t. 377). The name of *O. hybrida* appears on the plate, and the two now appear to have been connected for the first time. Lindley next called it *O. militaris* var. *hybrida* (*Gen. & Sp. Orch.*, p. 227), but remarked that he had seen no specimen, and still later it became *O. fusca* var. *bifida* (*Bogenh. Fl. Jena*, p. 350). Timbal-Lagrave, who in 1855 published a small memoir on European Orchid hybrids, called it *O. purpureo-militaris*, and recognised its variability, or the possibility of recrossing with the parents, for he indicated two other forms, under the names of *O. super-purpureo-militaris* and *O. sub-purpureo-militaris*. It has also received the names of *O. fusca* var. *triangularis*, *O. angusticruris*, Franch., and *O. dubia*, Camus, which facts show how greatly its history has been confused. It is well figured by M. Schulze (*Orch. Deutsch.*, t. 9 b) as *O. militaris* × *purpurea*. It has been found in several localities in France, Switzerland, and Germany.

The plants have done well at Keston, doubtless because of the calcareous nature of the soil, for the parents are chalk-lovers, and Mr. Reuthe remarks that the chalk crops up about 200 yards to the north, where *Cephalanthera pallens* grows, and again about 300 yards to the south, along a range of hills. Three of the spikes are particularly fine, and one form rather inclines towards *O. militaris* and another towards *O. purpurea*, though they can be generally described as intermediate. It would be interesting if Mr. Reuthe would cross the two, and raise a batch of seedlings, which would be quite possible in such a soil.

R.A.R.

 THE MECHANISM OF HEREDITY.

(Continued from page 186.)

WE saw last month that hybridisation consists in the combination of specifically distinct ancestries in the same individual, the necessary result being a compromise between the conflicting qualities and the production of individuals possessing more or less intermediate characters. We also saw that hybridisation itself is only an extension of sexual reproduction, the latter a process which differs from vegetative reproduction in certain definite particulars, the essentials of which are the production of two kinds of specialised cells, which are incapable of further growth until after their fusion in pairs in the sexual process. But sexual reproduction is not universal, being entirely absent from certain primitive groups of plants, and the fact invites inquiry as to the very origin of sex. The fact is, sexual production is itself an adaptation, it is something which is added on to the earlier process of reproduction by division, and the fact should help us to understand some of the highly specialised processes of reproduction among the higher plants. The very names Schizophyta and Conjugatæ, which have been applied to certain primitive groups, are based upon this fundamental distinction in their method of reproduction. It is even held that sexual reproduction has arisen independently more than once, but this point is immaterial for our inquiry.

It will facilitate an understanding of the two processes if we take a simple case, as in the filamentous Alga known as *Ulothrix zonata*. Here vegetative reproduction takes place by the production of what are known as zoospores; pear-shaped bodies, containing a single nucleus, and furnished with four long cilia, by which locomotion in water is brought about. These arise by bipartition from the ordinary cells of the filament, and swim about for some hours before they come to rest, and attach themselves to some object by the small end, after which they grow out into a new *Ulothrix* filament like the parent. But other cells, it may be of the same or of different filaments, produce bodies of a somewhat different kind. They also are produced by bipartition, but differ from the other kind of zoospores mentioned in having only two instead of four cilia, and in their smaller size. There is no other visible difference between them. Their behaviour, however, is different. They are, in fact, the sexual cells of *Ulothrix*. On escaping from the mother-cell they swim off through the water just like the larger kind of spore, but on meeting with another two-ciliated zoospore, produced by a different mother-cell, an extraordinary process takes place. The two at first become entangled by their ciliæ, and then go on spinning through the water together; their bodies now come

into contact laterally, and soon begin to fuse. The fusion starts at the pointed colourless ends, and after these parts are quite joined up laterally the opposite ends remain for a short time separate. In a few minutes fusion becomes complete, and the two cells now constitute a single four-ciliated body, essentially different from the vegetative zoospore. The new body is called a zygospore, to indicate its origin from two united sexual cells, while the sexual cells are called gametes to indicate their special property of uniting. The origin from two united cells can long be recognised by the presence of two chlorophyll-bodies and two eye-like spots, one from each of the uniting cells.

Movement does not continue long after fusion is complete. The zygospore withdraws its four cilia and comes to rest, attaching itself, like the vegetative zoospore, by the colourless pointed end. It now acquires a cell-wall, and often puts out a colourless root-hair by which it attaches itself to the substratum. Development now proceeds; the cell contents become darker and of a dark green colour, while the cell-wall is thickened, after which the new individual enters into a state of rest. After remaining dormant for a time the resting zygospores again become active, and the contents now break up simultaneously into a number of free cells or zoospores, from which the *Ulothrix* filament is again produced, and the life cycle is complete. It is interesting to note that if for any reason the two-ciliated gametes fail to conjugate they can germinate on their own account, either behaving like the asexual zoospores or forming resting spores like the zygospores. This indicates the important fact that the conjugating cells have not yet become exclusively adapted to a sexual function. There is also the remarkable resemblance of the sexually-produced zygospore to the vegetative zoospore, even to the restored size, and in the similar number of ciliæ.

In *Spirogyra*, a filamentous floating Alga, reproduction takes the form of a remarkably simple process, a form of conjugation between cells of adjacent filaments. These cells produce lateral out-growths, which come into contact and adhere together; the intervening cell walls are then absorbed, and the contents of one of the cells contract, and after a time passes over into the adjacent cell. The two nuclei then fuse together, and the united protoplasmic mass surrounds itself with a new cell wall, and in due time gives birth to the new generation. The conjugating cells are alike, but one is the receptive one, and there are other indications of a certain degree of sexual differentiation. Vegetative reproduction takes the form of an occasional breaking up of the filament into its constituent cells. In many other members of the *Conjugatæ* there is no trace of any difference of sex, for the cells meet and fuse midway between the parent cells, each of which takes an equal part in the process.

A special interest attaches itself to these primitive Algæ, for in them we can trace the very origin of the sexual process, while behind them may be seen the still more primitive organisms in which the only method of reproduction is by the vegetative process of cell bipartition. The introduction of sexuality has been followed by a whole series of progressive modifications to meet the requirements of changing conditions, culminating in the highly specialised processes met with to-day, while the primitive method of reproduction by vegetative division has taken an increasingly subordinate position, without, however, being lost where its retention served any useful purpose.

A hurried glance through the progressive stages of sexual specialisation in different groups will indicate more clearly what has taken place. At the outset we find plants consisting of a single cell, and propagating themselves by vegetative division. Then follow others where the cells remain in contact, forming filaments or tissues, but propagating themselves in the same way. The two Algæ already considered show the beginning of the sexual process, while a third, *Œdogonium*, makes another step in advance.

Here the sexual cells are perfectly differentiated, and instead of two similar conjugating zoospore-like gametes we find a small moving spermatozoid and a large resting ovum. Both partners are still on equal terms as regards the union of their nuclei, but the female cell remains in connection with the vegetative body of the parent, and alone assumes the duty of accumulating food-supplies for the next generation. Still higher, in *Coleochæte*, the oöspore, as the fertilised cell is called, divides up into a group of cells, in each of which a zoospore is formed, thus indicating a certain analogy with the formation of the sporogonium, or spore-mother, in the simplest liverworts.

This brings us to the next great division, the Bryophyta—liverworts and mosses—which have become adapted to an aerial mode of existence, and show a marked alternation of generations. The plant-body consists either of a thallus-like tissue or a stem and leaves, in either case on reaching maturity producing the sexual bodies in specialised organs, the male called antheridia and the female archegonia. The latter are flask-shaped bodies, formed of cellular tissue, with a tubular neck, and bearing the ovum at the base. Fertilisation is still by ciliated bodies, called spermatozoids, which are produced within the antheridia, and are carried down to the archegonia by rain or dew, and on reaching the neck of the latter are attracted to it and pass down its mucilaginous canal to the ovum, which it fertilises. The fertilised ovum now develops into the so-called moss-fruit, which produces spores asexually, these falling on some damp place and germinating, giving rise to a new moss-plant—the sexual generation. It is noteworthy that these plants in some cases produce exclusively male or

female gametes, thus securing cross-fertilisation between separate individuals, and that sexual zoospores are no longer produced.

The Vasculares, including the ferns, lycopods and horse-tails, show an enormous advance in the asexual generation, which is analogous to the moss-fruit, and which has now attained a complexity almost rivalling that of the flowering plants, while the sexual generation has receded to a small membranous prothallus, which bears the sexual cells in antheridia and archegonia, as in the Bryophyta. The two generations have practically reversed themselves, for the fern plant, to use a familiar term, is not the equivalent of the moss plant, while the elaborate system of vascular tissue in the former is an entirely new development, which intervenes between the germination of the fertilised ovum and the production of the asexual spores. The sporophyte in this group is greatly diversified, while in some cases it bears two kinds of spores, microspores, forming numerous small prothalli, and macrospores, forming a few large prothalli, on which the male and female cells respectively are borne. The vascular system is only developed in the sporophyte.

Among the Gymnospermæ—cycads and conifers—there is no longer an alternation of generations, for the female oöphyte has lost its independence altogether. It never leaves the megaspore, which itself remains shut up within the tissues of the sporogonium. Fertilisation now results in the production of a new body, called the fruit, consisting of the fertilised ovum and its protecting envelopes. The ovum matures into the seed, from which the new individual is developed. The male fertilising organs are the pollen grains, which are here multicellular, and are produced within the anther. The sexes are separate, and the flowers are produced in the axils of protecting scales, but are destitute of a perianth, while the ovules are not contained within an ovary. Fertilisation in this group is a slow and complicated process, and it will suffice to say that the pollen grains are wind-borne, and on reaching the ovules develop a pollen tube, which penetrates the endosperm—a mass of nutritive tissue which fills the embryo-sac (the latter representing the megaspore of the higher Cryptogams)—and enters the micropyle of the ovule, after which the nuclei of the pollen and ovule fuse together, and then develop into the seed. Fertilisation by pollen tube marks the beginning of the flowering plants, or Phanerogams, but it is noteworthy that in a few primitive Gymnosperms the earlier method by motile spermatozoids is partly retained, the pollen tube being first formed, but afterwards liberating two ciliated spermatozoids, which complete the work of fertilisation. The process marks an interesting transition between the higher Cryptogams and the Phanerogams.

In the Angiospermæ the ovules are contained within a closed ovary,

and the pollen tubes effect an entrance by way of the tissues of the stigma, which is often elevated on a style. The great characteristic of the group is the high development of the flowers and fruit, the former depending upon the varying degrees of adaptation to fertilisation by insects, and the latter upon various devices for the dispersal of the seeds and their protection until the time for germination arrives. The female prothallium and the archegonium are now eliminated or no longer recognisable, and the embryo-sac, after a few preliminary divisions, proceeds to the formation of the ovum, the development of the endosperm being postponed until after fertilisation, while the stages in the pollinary processes are also simplified.

The Phanerogamia now subdivide themselves into two primary groups, Dicotyledons and Monocotyledons, the former characterised by having an embryo with two cotyledons, a terminal growing point, and a permanent root system, the latter with the embryo reduced to a single cotyledon, and the growing point lateral, while the primary root disappears early and is replaced by adventitious roots, indicating a further degree of specialisation. The further points of difference in the stem, leaf venation, and floral arrangement may be passed over.

This brings us to the family Orchidaceæ, and we need not go into its special characteristics, beyond pointing out the wide departure from normal methods in the development and fertilisation of the ovules. An Orchid flower is only partially developed at the time of expansion, for the female generative system is in abeyance, the ovules then appearing as minute points of undifferentiated tissue; and they remain so until after the act of pollination, which applies the stimulus for their development. The first visible effect of pollination is the discoloration and withering of the perianth segments, and the thickening of the column, but while the pollen tubes are growing down the tissues of the latter the ovary and ovules are developing, and by the time they are mature the pollen tubes have reached their destination, and at once enter the micropyle of the ovule, and fertilisation is effected, after which the ovule develops into the seed. The interval between pollination and fertilisation may be a week or ten days in a hardy terrestrial Orchid, up to about three months in *Cattleya Mossiæ*, possibly longer in some cases.

We thus see that Orchids, in which the culminating point of development in the vegetable kingdom is reached, have a long and diversified ancestry, and a brief survey of its successive phases, with the progressive introduction of new and improved processes under changing conditions of the environment, forms a material help in the study of heredity. Without such a guide one might as well attempt the navigation of a rudderless ship across an uncharted ocean. Its application to the problems of hybridisation and reversion must be left for a concluding chapter.

R.A.R.

ODONTOGLOSSUM CRISPUM MARION.

THE intercrossing of choice varieties of *Odontoglossum crispum* has long engaged the attention of raisers of *Odontoglossums*, and the

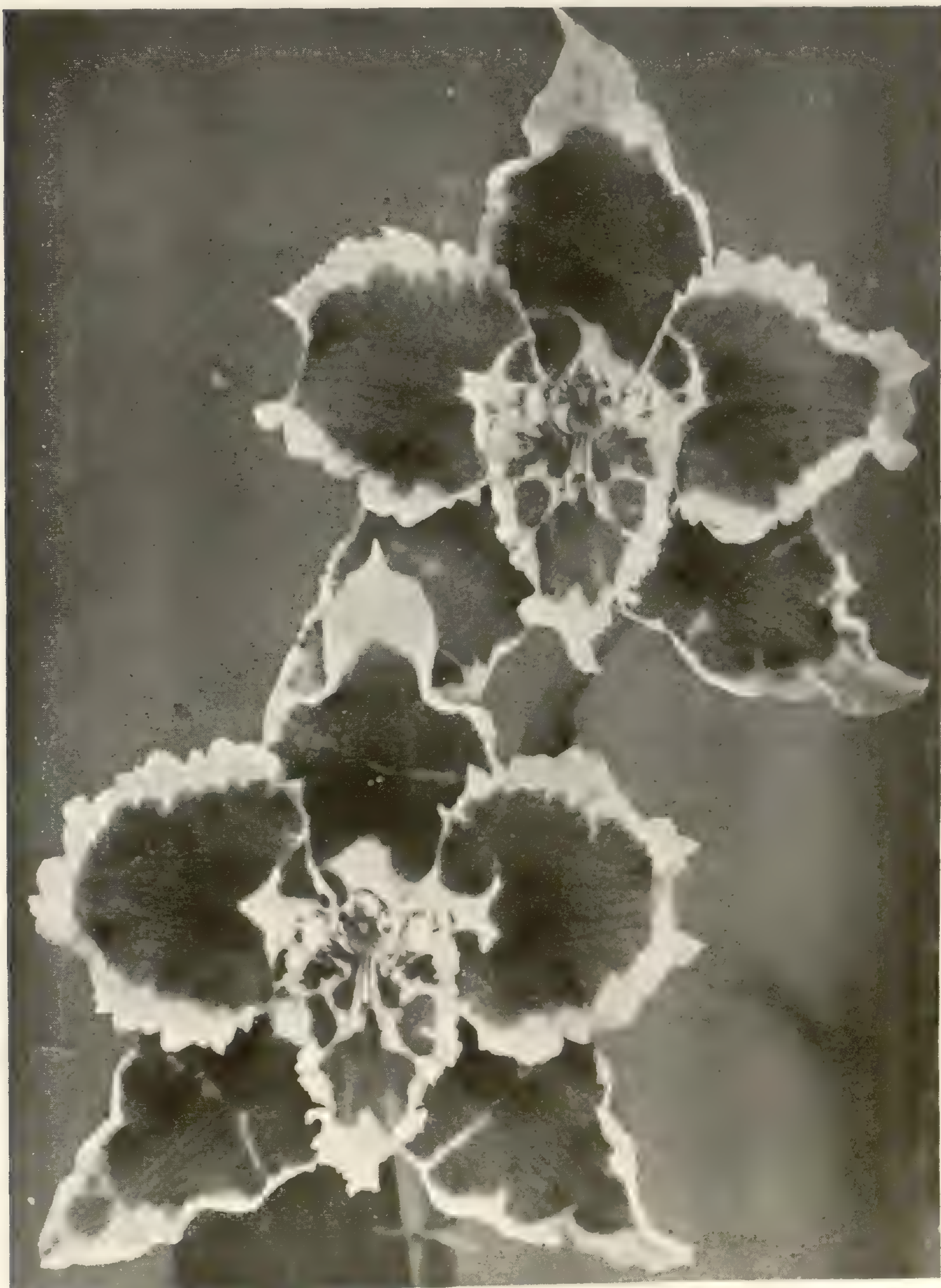


Fig. 24. *ODONTOGLOSSUM CRISPUM MARION*.

beautiful form here figured is one of the finest of the series. It was raised in the collection of Mrs. Norman Cookson, Oakwood, Wylam, by Mr. H. J. Chapman, from *O. c. Chapmanianum* × *O. c. Cooksoniæ*. Mr Chapman,

to whom we are indebted for the photograph, remarks that it is considered as one of the most beautiful forms of *O. crispum* in the collection. The segments are very broad, giving the flowers a full round shape, and the petals are well fringed. The segments have a broad white margin, and the large solid blotches are deep purple with a suffusion of purple at the edges. There is a deep suffusion of rose-purple at the back of the segments, giving a tinge of purple in front, especially at the tip of the sepals, while the blotches on the lip are rich chestnut brown, with the usual yellow crest. It is named after Mrs. Clive Cookson.

If we were asked, is it a *crispum*?—and no other question is so frequently put to us now that so many blotched *Odontoglossums* are being



Fig. 25. *ODONTOGLOSSUM WILCKEANUM CHESTERTONII*.
(? *crispum* × *luteopurpureum*.)

raised—the answer would be difficult. It is a *crispum* in the sense that its parents are *crispums*, and in the sense that the term is generally used, but it has long been recognised that *Odontoglossum crispum* is what may be termed a composite species, and that it includes a number of blotched derivatives from several other species with which it grows in a wild state—the result of crossing by insects through countless generations. This is easily seen from their characters, and from the fact that they do not occur where *O. crispum* grows separately, as in the case of the geographical form *O. crispum Lehmanni*, but they grade so imperceptibly into the species that all absolute dividing lines are obliterated.

It may, at least, be said that *O. crispum* grows and hybridises naturally with *O. gloriosum*, *O. luteopurpureum*, *O. Lindleyanum*, and *O. Hunnewellianum*, yielding the primary hybrids, *O. Andersonianum*, *O. Wilckeanum*, *O. Coradinei*, and *O. Adrianæ* respectively—the origin has now been proved experimentally in every case—and that the hybrids are completely fertile, and, so far as they occur together, continue to cross back with the parent species and with each other, yielding a series of secondary hybrids whose origin it is often impossible to ascertain by



Fig. 26. *ODONTOGLOSSUM WILCKEANUM ALBENS*.
(? *crispum* × *luteopurpureum*.)

comparison, because of the amount of segregation of character and reversion that takes place.

The limiting phrase "so far as they grow together" is necessary, because they do not occur indiscriminately in the same area. *O. Hunnewellianum* and its derivative, *O. Adrianæ*, for example, were not known until many years later than the others, appearing quite unexpectedly when *O. crispum* was found and imported from a new district, which has since yielded also *O. gloriosum* and *O. Andersonianum*, so that the latter pair occur in both areas. Again, differences among the quality of blotched "crispums" from different districts have long been recognised, and this would result from their varying composition, but how far this can be

utilised for purposes of classification is doubtful, for the source of many blotched crispums is unknown. Were it otherwise the amount of variation among seedlings from the same capsule would upset all calculations. It would, however, be a very interesting experiment to self-fertilise some distinct and good blotched "crispum" and then compare all the resulting seedlings, for one might get an idea of its composition by the amount of reversion shown. It need not be a waste of time, for the probability of something good resulting is practically as great as if it were crossed with some other blotched crispum. We do not remember that any such



Fig. 27. ODONTOGLOSSUM STEWARTIANUM.
(Andersonianum magnificum $\times$ crispum heliotropium.)

experiment has been undertaken, or at least the results recorded, but it would be very instructive. Continued crossing introduces confusing elements, and what is wanted is the self-fertilisation of some hybrid of mixed ancestry. We know that they are fertile, and that reversion takes place; the question now is who will make the experiment and give us something definite to work upon.

The accompanying figures illustrate some of the difficulties of the question. Fig. 25 (p. 202) represents a striking *Odontoglossum* which appeared in an importation of *O. crispum* with Messrs. James Veitch & Sons. It was named *O. Chestertonii*, after the collector, and received a

First-class Certificate from the R.H.S. in March, 1876. The ground colour is white, and Reichenbach called the plant *O. crispum* var. *Chestertonii*. The writer called it *O. Denisoniæ* var. *Chestertonii*, on the ground that it was partly derived from *O. luteopurpureum*. It was then thought that *O. Denisoniæ* was a hybrid between *O. crispum* and *luteopurpureum*, but artificial hybrids between the two latter do not yield identical hybrids, and it is now believed that *O. Denisoniæ* is a secondary hybrid of the same origin as *O. mirum*. The crossing of *O. crispum* and *luteopurpureum* yields yellow hybrids with brown spots, reproducing the natural hybrid *O.*

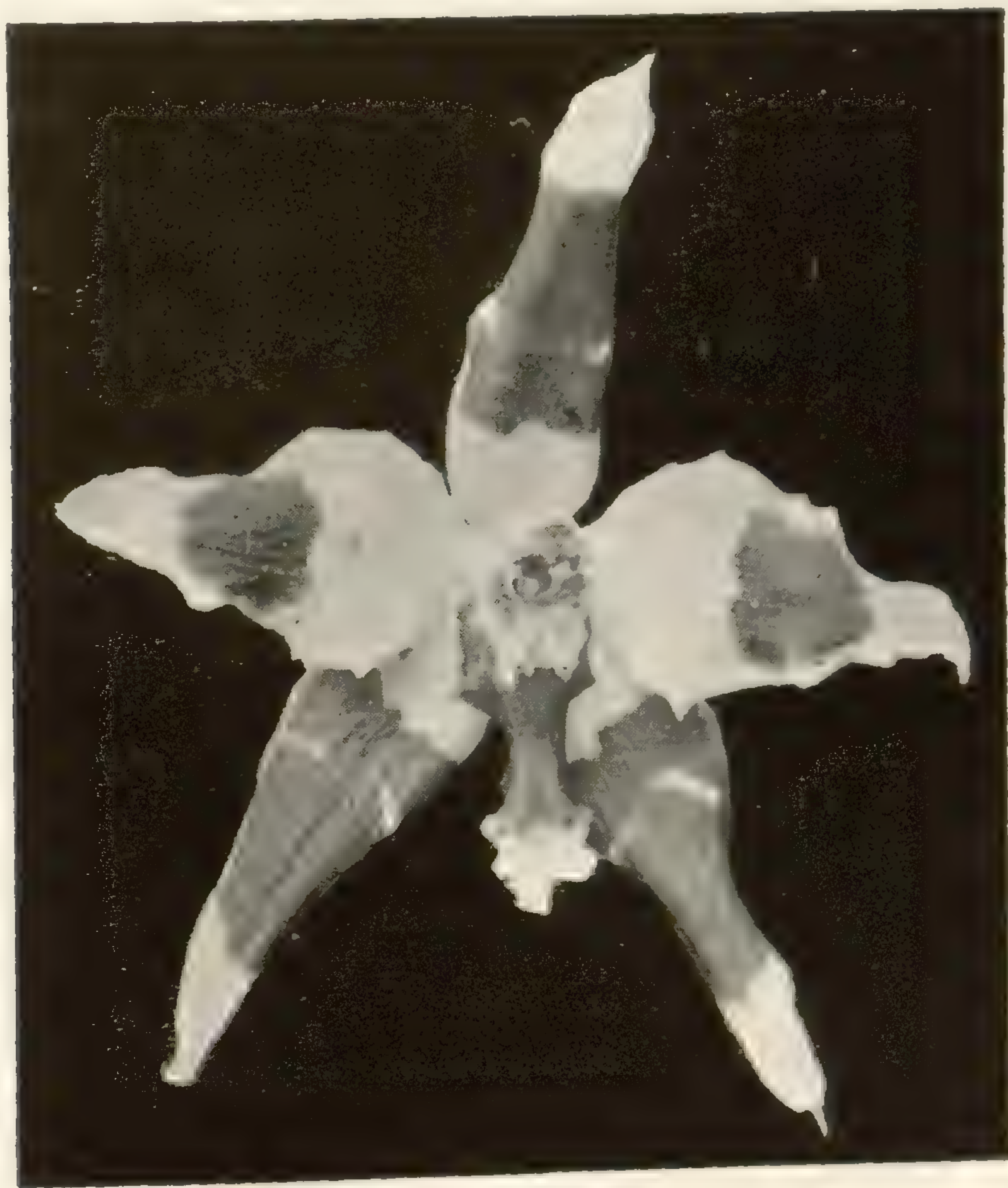


Fig. 28. *ODONTOGLOSSUM CORADINEI MIRABILE*.
(? *Lindleyanum* × *crispum*.)

Wilckeanum, though Mr. Crawshay admits having seen two with white grounds, and it is doubtful whether *Chestertonii* represents the primary cross.

The original *O. Wilckeanum albens* is represented in fig. 26 (p. 203), and this, too, is of uncertain origin. Mr. Crawshay has collected its history (*O.R.*, xv. p. 217). It appeared in an importation of *O. crispum* with M. Ch. Vuylsteke, about 1885, and part of it afterwards came to England, receiving a First class Certificate from the R.H.S. in February, 1887, under the name of *O. crispum leopardinum*. A division of the plant was figured

in 1896 as *O. Wilckeanum Pittianum*, and seven years later another figure appeared as *O. crispum Sibyl*. It finally came to rest as *O. Wilckeanum Sibyl*, but from our present knowledge is more likely to be a secondary hybrid. It is not a *crispum*, and it can hardly be called a pure *O. Wilckeanum*. We should look for it under *O. mirum*.

O. Stewartianum (p. 204, fig. 27) is a garden hybrid, raised from *O. Andersonianum magnificum* $\times$ *O. crispum heliotropium*, but there is plenty of room for uncertainty about the origin of the parents. The latter shows such a marked resemblance to *O. gloriosum* in the spotting as to suggest that that species must be in some way involved in the ancestry (see *O.R.*, p. 121, fig. 15). The former parent we do not remember, but there are good grounds for believing that some of the finer forms referred to *O. Andersonianum* are recrosses with *O. crispum*. Had *O. Stewartianum* appeared as a wild plant it would probable have been called a variety of *O. crispum*, and one would like to know what other seedlings of the same batch were like. A pure *crispum* should have resulted in a reduction of the markings, and it is probably a more complex cross.

Odontoglossum Coradinei mirable (p. 205, fig. 28) is another perplexing form. It is believed to have been imported with *O. crispum*, and was exhibited by Baron Sir H. Schröder at a meeting of the R.H.S. held in June, 1894, when it received an Award of Merit. But it looked so much like a hybrid between *O. crispum* and *O. Lindleyanum* that we recorded it as *O. Coradinei mirable*. The alteration was accepted, and at the following Temple Show it received a First-class Certificate under the latter name. Its exceptional size was recognised from the outset, and it is at least possible that it may be the result of recrossing with *O. crispum*, yet it is not quite *O. crispodinei*, raised by Mr. Crawshay from this cross.

A good many blotched *Odontoglossums* formerly put under *O. crispum* are now recognised as natural hybrids, but the natural limits of the species have been practically obliterated by continued crossing.



OBITUARY.



GEORGE HUNTER.—We greatly regret to hear of the death. at the early age of 36 years, of Mr. George Hunter, who for the last seven years has been gardener and Orchid grower to His Grace the Duke of Marlborough at Blenheim. He contracted a severe chill a few days before the Chelsea Show, for which he is said to have been making preparations, and died from pneumonia on May 21st. Mr. Hunter commenced his gardening career with the late Mr. Norman C. Cookson, Oakwood, Wylam, after which he became Orchid grower to the Earl of Tankerville, at Chillingham Castle. He has been a member of the R.H.S. Orchid

Committee for the last two years. He leaves a widow and two young children, to whom we tender our deepest sympathy.

ORCHIS PRÆTERMISSA.

AN *Orchis* collected in a boggy place at Middlebeere Heath, near Corfe Castle, Dorset, by Mr. C. B. Green, has been identified by Mr. G. C. Druce as his *O. prætermissa* (see *O.R.*, xxi. p. 39), and Mr. A. B. Jackson, of the Imperial Institute, has kindly handed me a specimen sent to him by Mr. Green. From the reference to the colour of the flowers I had half suspected that *O. prætermissa* might be the crimson coast form of *O. incarnata*, although the habitat was not in agreement. The specimen now sent agrees well with the plant figured at t. 2308 of Sowerby's *English Botany* as *O. incarnata*, which Syme reproduced at t. 1457 as *O. latifolia*, and I believe it is also the purple form of *O. incarnata* mentioned by Townsend (*Fl. Hamps.*, pp. 341, 504) as found in meadows by the Stour and its tributaries west of Hern Station, together with the flesh-coloured form. Mr. Townsend states that in these meadows *Orchid latifolia* also occurs, flowering later than *O. incarnata*.

The question now arises as to the status of the plant. Long before connecting this purple form with *O. prætermissa* I formed the opinion that it may be a hybrid between *O. incarnata* and *O. latifolia*. The characters of *O. incarnata* are well summarised by the late Mr. C. B. Clarke in his account of the Bransbury Marsh plant (*Journ. Linn. Soc.*, xix. p. 206, t. 31), and are shown in the coloured figure. It has comparatively narrow ascending leaves, slightly hooded at the extreme apex, and a rather narrow spike of flesh-coloured flowers, streaked with rose on the lip, which has rather small reflexed side lobes. *O. latifolia* has broader, more spreading leaves, and broader spikes of purple flowers, with large, more spreading side lobes. *O. prætermissa*, as seen in Sowerby's figure and in Mr. Jackson's plant, is most like a luxuriant *O. incarnata* with a strong purple suffusion in the flowers, and the modifications are in the direction of *O. latifolia*. It is more than a mere question of colour difference.

A hybrid between the two has been described under the name of *O. Aschertoniana*, Hausskn., and the *O. incarnato-latifolia* figured by M. Schulze (*Orch. Deutsch.*, t. 19 b) is cited as a form of it by Camus, who describes the hybrid as having narrower leaves than *O. latifolia*, and darker-coloured flowers than *O. incarnata*. It has a wide distribution, and may be expected wherever the two species grow together. It is not improbable that hybrid intermediates may partly account for the way these two species have been confused together, and with other allies, as the existence of

intermediates was formerly considered as evidence for uniting forms that would otherwise have been considered distinct, but modern research has placed the matter in a new light. In Britain, the two species have been so much confused that many of the old records are quite unreliable, and some erroneous.

O. incarnata, however, is less widely diffused than *O. latifolia*, though locally abundant, as at Bransbury Marsh, Hampshire. Mansel-Pleydell (*Fl. Dorset*, p. 257) gives seven districts in Dorset for *O. latifolia*, and five for *O. incarnata*, but only one locality seems common to both. And he certainly knew and expressly mentioned the flesh-coloured form, yet in the first edition of his book (1874) he cited Syme, t. 1457, as *O. incarnata*, but both he and Townsend wrongly followed Reichenbach in including *O. foliosa*, Soland., as a form of *O. incarnata*, for it is a Madeiran plant, now well known in cultivation. *O. incarnata* is constitutionally distinct from *O. latifolia*, for it dies out at Kew, either in ordinary soil or in the rockwork bog, while *O. latifolia* is easily grown. It would be interesting to test the behaviour of *O. prætermissa*. R.A.R.

ODONTIODA PAPILIO.—Four very diverse forms of this striking *Odontioda* were exhibited at the R.H.S. meeting held on June 22nd last by Sir Jeremiah Colman, Bart., Gatton Park, Reigate, to whom we are indebted for a flower of each. The original appeared at the Temple Show in 1911 (*O.R.*, xix. pp. 181, 229), but since then others have bloomed, illustrating once more the remarkable variation now so familiar among secondary hybrids. The parents are *Cochlioda Noëtzliana* × *Odontoglossum warnhamense* (*Hallii* × *nobile*), and in the resulting seedlings the original yellow and white ground colours have taken the opportunity of again separating themselves, two being yellow and two white, all with copious crimson-red markings. In one of the yellows the markings take the form of partly confluent blotches, leaving sufficient yellow to give the flower a very bright appearance, but in the other the overlying red colour is very dark and suffused, except at the tips and upper margins. The yellow comes out better on the lip. Both have the typical *Odontioda* shape, also one of the two white grounds, and in this the blotches on the centre of the petals are confluent in irregular lines, leaving elongated white areas between, and giving a very distinct appearance to the flower. The fourth is larger, and has more of the *Odontoglossum* shape. In this the petals have a large crimson blotch above the middle, with several smaller ones below, and the margins are prettily tinged with purple, a character which also extends to the white of the lip. In all the spiny crest is bright yellow. Three of the plants bore two fine spikes, and they formed a very charming little group.



MASDEVALLIA ROSEA.



MORE than one enquiry has been made as to what has become of the very distinct and charming *Masdevallia rosea*, of which a good



Fig. 29. MASDEVALLIA ROSEA.

specimen grown in the collection of Major-Gen. C. B. Lucie-Smith, of Worthing, is here represented. Well-flowered plants of its hybrid with *M. caudata*, known as *M. Courtauldiana*, are frequently met with, but

M. rosea itself is very rarely seen. We believe that it requires particularly cool treatment during the summer months, for it occurs at a high altitude in Ecuador, and this particular specimen was grown outside from May to October in a cool shady place, protected by a canvas screen. In any case the species has disappeared from some collections where other *Masdevallias* are successfully grown, and it would be interesting to know the reason *M. rosea* is a native of the Eastern Andes of Ecuador and Colombia, growing at an altitude of about 9,100 to 10,400 feet. Consul Lehmann, to whom we owe its introduction to cultivation in 1879, states that it grows on trees in dense and damp woods, in a mean annual temperature of from 50° to 54° Fahr. It was originally described by Lindley from dried specimens collected by Hartweg, about the year 1843.



CALENDAR OF OPERATIONS FOR JULY.



By W. H. WHITE, for many years Orchid Grower to the
late Sir Trevor Lawrence, Bart., K.C.V.O.

WITH such warm weather as has prevailed during the past few weeks scarcely any fire-heat will be needed in the day time in either division. In the East Indian house the hot-water pipes should, by night, be made only just luke-warm, to assist in promoting a genial growing temperature, and to cause the air and moisture to circulate freely amongst the plants, and thus prevent spot occurring from the damp atmosphere. The temperature at night should be kept as near to 70° as possible, and the lower ventilators should be left partly open whenever the weather is suitable.

In the *Cattleya* house very little artificial heat will be needed at night if the inside temperature keeps a trifle above 60°. Should, however, the external air become damp and chilly, it will be advisable to make the pipes luke-warm, otherwise the young growths of some of the *Cattleyas* and *Lælias* may damp off. Afford the inmates as much fresh air as possible by night as well as by day. These remarks apply also to the Mexican house. The Intermediate house will need scarcely any fire-heat from this time, but a free admission of air is necessary at all times.

The *Odontoglossum* house must also be freely ventilated, and, with the exception of a few hours during the middle of the day, the atmosphere should be kept well charged with moisture. Keep the plants well shaded so long as the sun shines upon the roof. On span-roofed houses, fully exposed to the sun all day, it is advisable to keep the temperature as low as possible, and where lattice-wood blinds are in use, it is beneficial to supplement them with ordinary garden mats, placing these upon the glass so that a current of air passes between them and the blinds. If the sun-

heat is extra powerful during the middle of the day, it is advisable to well damp the mats whenever they become dry; by this practice the inside temperature may be kept 6° or 7° lower than the outside. *Odontoglossums*, when exposed to strong sunlight admitted through the lattice wood blinds, often become red in the leaf, and the foliage does not last nearly so long as if it maintained a fresh green appearance. It is not always that these red-tinted leaves fall off during the summer months, but a great number of them do during the autumn and winter, when fire-heat becomes a necessity.

CYPRIPEDIUMS.—Such dwarf-growing species as *C. bellatulum*, *concolor*, *niveum*, *Godefroyæ*, and several of their hybrids, which have just passed the flowering stage, may be repotted if they require it, not disturbing them unnecessarily at the roots. The work needs the utmost care, the roots being very brittle, and are often injured during the process. Previous to repotting it is advisable to allow each plant to become rather dry. Thriving specimens that require more space should have the old pot carefully broken, the stale and loose materials carefully removed, leaving the drainage untouched if surrounded with living roots. Place the plants into a larger pot, filling up rather more than half its depth with drainage materials. For this purpose I have experimented with limestone, hard chalk, broken bricks, charcoal, pieces of tufa rock, &c., but I have found nothing more suitable than clean broken crocks, and for a compost, good fibrous loam, freely intermixed with small crocks. In potting, keep the base of the leaves about on a level with the rim of the pot, and the surface of the compost about half an inch below, which will render watering an easy matter. It is advisable to pack the compost quite firmly around the base of the plants. Shallow pans are suitable receptacles for these plants, and, with copper wire handles attached, are easily suspended within a foot or eighteen inches of the roof glass. Cultivate these plants in a light position in the *Cattleya* house, and they should be well supplied with water all through the growing season, but the grower should remember to keep them well on the dry side during the winter months. Thrips quickly damage the young foliage, and should be frequently sought after, but where the house is periodically vaporised there will be little need to do this, but the leaves may be sponged over occasionally. In so doing much care must be taken not to raise the succulent leaves above their own level, or the mid rib will crack and the leaf become permanently injured.

CATASETUMS.—*Catasetums*, *Cycnoches*, *Mormodes*, and *Cyrtopodiums* are now growing vigorously, and well-rooted plants need plentiful supplies of water, but such plants that are not yet well established need watering with great care. When in full growth these plants delight in abundance of root moisture, but they should not be kept in a saturated condition for any

length of time, it being advisable to allow each plant to become quite dry and then to afford sufficient water to thoroughly wet the compost. The flower spikes generally appear as the pseudobulbs become matured. *Cyrtopodium* send up their flower spikes in conjunction with the young growths. When the plants are commencing to finish up their new pseudobulbs, they should be exposed gradually to full sunshine, and be watered at the roots till the current season's growths are ripe. At that stage the leaves commence to turn yellow, and, if properly matured, soon fall off, when root waterings should be gradually reduced. These plants grow best on the lighter side of the house, and, if convenient, they should be suspended from the roof with their foliage within one foot of the roof glass.

HABENARIAS.—Such species as *H. militaris*, *H. rhodochila*, *H. carnea*, and the new *H. Rœbelenii* are now in full growth, and need abundance of water at the roots. As these plants are grown in a rather shallow layer of compost, and the principal roots being on or just below the surface, the potting materials dry very quickly, therefore the plants should be constantly examined to see if water is necessary. Grow these *Habenarias* in the hottest house, and stand them on inverted pots close to the roof glass, or they may be suspended in shallow pans from the roof, so that they may obtain plenty of light, but not direct sunshine. Diffused light coming through open lattice wood blinds just suits their requirements, whereas they seldom produce fine heads of bloom or dwarf spikes when grown in dense shade. A light spraying overhead several times a day, in bright weather, all through the growing season is beneficial to them.

SCHOMBURGKIAS.—The different species of *Schomburgkia*, as *S. tibicinus*, *Kimballiana*, *Sanderiana*, *Humboldtii*, *Thompsoniana*, *Galleottiana*, and the rare *S. Chionodora*, which have hollow, horn-like pseudobulbs, require much sunshine at all times, and as these plants are now commencing to grow, they should be placed in the lightest position available in the hottest house. They thrive equally well either in pots or baskets, but are more easily managed under pot culture. *S. Humboldtii*, owing to its scandent habit of growth, is more at home when securely fastened to upright teak rafts, and suspended close up to the roof glass. *Schomburgkias* prefer a shallow rather than a deep rooting medium, and this should consist of hard coarse *osmunda* fibre only, potting each plant with considerable firmness. Abundance of water is necessary all through the growing season, but when the new pseudobulbs are fully made up considerably less moisture should be given. Grow the plants where they may obtain almost uninterrupted sunshine, and plenty of fresh air at all times. To ensure their flowering regularly it is essential that the new growths should become thoroughly matured, also that the plants be afforded a long decided rest. When the new growths commence to push out their bunches of numerous young roots,

see that cockroaches and woodlice do not devour them. Those species with fusiform pseudobulbs, as *S. undulata* and *S. Lyonsii*, will thrive under similar conditions, but prefer a greater depth of soil. *S. crispa* succeeds better in the Cattleya or Mexican house if given a very light position.

PLATYCLINIS.—Plants of *P. filiformis* are fast sending up their thin thread-like flower stems, and the plants will benefit from a daily overhead syringing till such time as the tiny flowers open. Plants of *P. glumacea* that have finished their growth will henceforth need but little water at the roots, but must not be allowed to suffer from excessive dryness. *P. Cobbiana* and *P. uncata* require similar treatment. Sponge the leaves of these plants occasionally to keep them free from red spider and other insects. All the species of *Platyclinis* thrive well in a shady position in the Intermediate house the whole year round. Formerly these plants, like a great many other Orchids, were coddled and ruined by being grown in too much heat and too little fresh air. Being natives of the Philippine Islands it was considered necessary to give them very warm moist tropical treatment, but the plants, as a rule, deteriorated gradually, and were always infested more or less with insect pests. These pretty Orchids may be repotted at the fading of the flower or at the commencement of growth. Shallow pans are preferable to pots, as they are more easily suspended from the roof, in which position the plants grow best. They root freely in a mixture composed of equal parts of chopped osmunda fibre and sphagnum moss. Freshly-potted plants should be very carefully watered, merely spraying the surface of the compost to keep it moist, and afford a little extra shade until each plant becomes re-established.

CATTLEYA HOUSE.—In this house many species of *Cattleya*, *Lælia*, and their numerous hybrids have recently passed their flowering stage, and those plants that need repotting should be attended to at once. When repotting any of these plants the beginner should remember that over-potting is an evil, and should be guarded against, the smaller the pot the better the safeguard against injury from excessive water at the roots. For full information as to repotting, compost, &c., the reader should refer to the Calendar of Operations for May. At this season, probably owing to extra sun-heat and drying winds, many of the plants, after being disturbed by repotting, will not appear quite so robust as usual, and in many cases the back pseudobulbs, especially those without roots, will have become slightly shrivelled, but no harm will result if they are watered with care, and the atmospheric conditions of the house are what they should be. As the young growths lengthen, and roots become numerous in the fresh compost, the shrivelled bulbs will soon regain their normal condition. It is not a good practice to saturate repotted plants with the object of inducing the pseudobulbs to retain their plumpness, because during the time the soil is wet,

the old roots are gradually but slowly decaying, and the new roots will not thrive for long in excessively wet material. Give the plants a nice evenly-balanced growing atmosphere, especially in the afternoon and evening, and plenty of fresh air at all times. Undoubtedly *Cattleyas* and *Lælias* appreciate fresh air as much as any Orchids, in fact a great deal more than many growers would care to risk. Some of these plants that have been repotted—*C. Warneri*, as an example—should, after making a quantity of roots, be placed at the cooler end of the house, because, so far as growth is concerned, the plants will be at rest. *Lælia purpurata* should not be disturbed until growth commences. It is advisable to keep this plant fairly cool also, and in a resting condition as long as possible, as the growths that start away too early in the season are not so likely to produce flower sheaths as those that push up later. *C. Warscewiczii* (gigas) and its varieties are now coming into bloom, and should be kept at the warmer end of the house, so that the flowers may develop properly. A little extra water may be afforded to the roots till the flowers open, but when the plants have flowered gradually expose the growths to more sun and air.

ODONTOGLOSSUM CITROSMUM.—Plants of this Mexican species in many collections have passed their flowering season, and as the young growths are making considerable headway, now is the time for repotting if necessary. As the plants do not make many roots, receptacles of the smallest size should be used. Shallow Orchid pans that may be suspended from the roof are preferable to baskets. Afford good drainage, and use a shallow compost of *osmunda* fibre and *AI* fibre, chopped up rather small and well mixed together. Cut off all useless back bulbs, and pot each plant quite firmly. Suspend the plants from the roof of the Mexican house, and for a few weeks after root disturbance keep the surface of the compost just moist. Towards the completion of growth the plants will take plenty of water each time the soil becomes dry. *O. citrosmum*, like *Lælia anceps*, requires a rather warm sunny position by day, but cooler and moister conditions at night, with plenty of ventilation at all times.

COOL HOUSE.—In this house plants of *Odontoglossum grande*, *Williamsianum*, *Insleayi*, and *Schlieperianum* are growing freely, and any that require larger pots should be attended to. A very porous compost of *osmunda* fibre should be employed, for, although these plants require copious waterings when in full growth, water should pass quickly through the soil, as through a sieve, as the fleshy roots are liable to decay if the compost becomes dense and saturated. See that no water, either from drip or syringe, lodges in the growths, or they will probably damp off. All of these plants grow well on a high dry shelf in the Cool house, and they need plenty of light when growing, but not direct sunshine. Slugs and woodlice are fond of the tissues of the young growths, also the succulent

roots, and must therefore be guarded against. Such plants as *Lælia pumila*, *præstans* and their varieties are just commencing to grow, and if a suitable position can be found for them in this house, where they can obtain plenty of light, they may remain there until their flower buds appear, but as a rule the Cool house is rather too shady for them during their growing period, and it may be preferable to remove them to a cool part of the Intermediate house. The plants may be afforded fresh rooting material whenever new roots appear at the base of the current season's growth. These dwarf-growing plants are best cultivated in shallow pans, that can be suspended close to the roof glass. The pretty white-flowered *Odontoglossum pulchellum* may be repotted at this season. The plant thrives well when potted firmly in well-drained osmunda fibre, and will prosper well in a light position in this house during summer, but when the nights become colder, it prefers a few degrees more warmth. Strong well-rooted plants should have abundance of water whilst growing, but as soon as growth is completed gradually lessen the amount, and afford the plant a rest by keeping the compost well on the dry side, as without a rest the plant will not bloom satisfactorily.

LÆLIOCATTLEYA CLARKII.—Flowers of two interesting hybrids derived from *Cattleya intricata* × *Lælia purpurata* are sent from the collection of E. F. Clark, Esq., Evershot, Dorset. One of them originally flowered in July, 1913, and was described in these pages (*O.R.*, xxi. p. 278). The other seedling has now bloomed, and agrees well with the original, though the petals and lip are not quite as broad. Mr. Clarke gives the seed parent as *Cattleya intricata*, though the point is not quite certain. It was purchased as *C. intermedia*, and was no doubt imported for it, but on flowering it proved quite distinct, and was noted at page 204 of our sixth volume under the name of *C. picturata*, for it was thought that Mr. Clark's plant was a natural hybrid from *C. guttata* and *C. intermedia*, the two recorded parents of Messrs. Veitch's *C. picturata*. *C. scita*, Rchb. f., is a natural hybrid supposed to have the same parentage, and appeared after *C. picturata*. It is unfortunate that both plants have been lost sight of. Another possible cause of confusion is that *C. guttata* and *C. Leopoldii* were not distinguished in the early records. The history of *C. guttata* was given at page 318 of our last volume. All that is known of the origin of Mr. Clark's plant is that it came from the Robinow collection, but if it could be traced to the island of Santa Catherina it would remove any doubt about its being a form of *C. intricata*, and this would indicate the possibility of *Læliocattleya Clarkii* occurring also as a wild plant, as was remarked when it was originally described. No further information, however, has appeared as to the other plants then mentioned, which have probably been lost sight of.



SOCIETIES.



THE first meeting after the Chelsea Show was held at the Royal Horticultural Hall, Vincent Square Westminster, on June 8th, and produced a very fine display of Orchids, including a most beautiful albino of *Cypripedium Curtisii* from Messrs. Sander & Sons. The awards consisted of eight medals—two of them from amateur exhibitors—three First-class Certificates, and an Award of Merit.

Orchid Committee present: J. Gurney Fowler, Esq. (in the Chair), Messrs. J. O'Brien (hon. sec.), Gurney Wilson, F. M. Ogilvie, W. Bolton, S. W. Flory, R. A. Rolfe, A. Dye, W. P. Bound, H. G. Alexander, J. Cypher, J. Charlesworth, T. Armstrong, W. Cobb, Pantia Ralli, S. Low, R. G. Thwaites, F. Sander, Sir Harry J. Veitch, and Sir Jeremiah Colman, Bart.

J. Gurney Fowler, Esq., Brackenhurst, Pembury (gr. Mr. Davis), staged a very choice group, to which a Silver Flora Medal was awarded. It contained a cut spike of the handsome *Eulophiella Peetersiana*, some good *Odontoglossum crispum*, a very fine hybrid of the *O. Aglaon* type, *Odontioda Charlesworthii*, *O. (?)* var. *Monte Rosa*, having sepals and petals mottled with red and white, and the lip with a deep salmon-red centre, *Miltonia vexillaria* Fowler's var., a particularly fine rose-coloured form, and several beautiful varieties of *Cattleya Mossiæ*. Of these *C. M. Venice* was a very richly-coloured form bearing four flowers, *C. M. Sea Foam*, a beautiful white with a few purple markings on the front of the lip, and *C. M. Arnoldiana* Fowler's var., a very fine form of the *Reineckea* type.

W. Thompson, Esq., Walton Grange, Stone (gr. Mr. J. Howes), also received a Silver Flora Medal for a very fine group of *Odontoglossums*, notable among them being the richly-coloured *O. eximium* Walton Grange var. with a spike of ten flowers, *O. sceptrum aureum*, *O. Queen of Spain*, a handsomely blotched flower, *O. Aglaon*, a richly-coloured *Odontioda Goodsoniæ*, and others, most of them having been raised in the collection.

E. R. Ashton, Esq., Broadlands, Camden Park, Tunbridge Wells (gr. Mr. Young), sent a very beautiful example of *Miltonia Charlesworthii* with four spikes, each bearing six light rose flowers with a very dark mask at the base of the lip.

Sir Jeremiah Colman, Bart., Gatton Park, Reigate (gr. Mr. Collier), sent the handsome *Odontoglossum crispum* *Queen of Gatton*, having a white ground colour with a large reddish-purple blotch on each segment, also a good hybrid with purple flowers.

H. S. Goodson, Esq., Fairlawn, Putney (gr. Mr. Day), sent *Odonto-*

glossum crispum Ernestii and O. c. President Fallieres, two handsomely blotched forms; also Odontioda Joan vars. Rutilant and Fire King, the former bright-red with a very broad lip, and the latter more claret-coloured.

R. G. Thwaites, Esq., Chessington, Streatham Hill (gr. Mr. Hannington), staged a pretty little group of about fifteen seedling Cattleya Mossiæ Wageneri, C. Dusseldorfii Undine, Lælia purpurata, and Odontoglossum Pescatorei virginale, pure white with a deep yellow crest to the lip.

Messrs. Charlesworth & Co., Haywards Heath, staged a choice group, largely consisting of well-grown Miltonias, and including three beautiful examples of M. Charlesworthii, a well-flowered M. Bleuana, M. vexillaria



Fig. 30. ODONTOGLOSSUM CRISPUM PERFECT GEM (see page 219.)

magnifica and M. v. Lyoth, two very handsome rose-coloured forms, a profusely flowered example of M. v. Cobbiana, two fine Læliocattleya Fascinator, Odontioda Brunette, a good plant of Masdevallia Courtauldiana, Odontoglossum crispum xanthotes, and others (Silver Flora Medal).

Messrs. J. Cypher & Sons, Cheltenham, staged a fine group, including several fine Odontoglossum crispum, O. percultum, O. Jasper, Odontioda Charlesworthii and Goodsoniæ, Dendrobium thyrsiflorum, Miltonia vexillaria, Oncidium Marshallianum, Læliocattleya Fascinator, a good plant of Cypripedium caudatum, some good Cattleya Mossiæ, Warscewiczii, and others (Silver Flora Medal).

Messrs. Sander & Sons, St. Albans, also staged another fine group, including a plant of Coryanthes macrantha bearing a finely-developed

flower, some good *Cattleya Mossiæ*, *Læliocattleya Mauretania magnifica*, L.-c. *Roger-Sander* (L.-c. *luminosa* × *C. Mossiæ*), L.-c. *Acis*, and L.-c. *Aphrodite*, some good *Odontiodas* and *Odontoglossums*, *Angræcum Scottii*, the rare *Sarcochilus unguiculatus*, *Xylobium squalens*, *Cœlogyne integerrima*, *Eria ornata*, *Dendrobium crystallinum*, and other interesting thing (Silver Flora Medal).

Messrs. Hassall & Co., Southgate, staged a fine group, including white and coloured forms of *Cattleya Mossiæ*, *C. Dusseldorffii Undine*, good examples of *Lælia purpurata*, *Trichopilia Backhouseana*, *Læliocattleya Cowanii*, an orange-coloured form of *Miltoniodes Cooperi*, two good *Sarcopodium acuminatum*, *Odontoglossum percultum sulphureum*, a pretty sulphur-coloured form with an occasional blotch on some of the segments, *O. Pescatorei* and other good things (Silver Banksian Medal).

Messrs. Stuart Low & Co., Jarvisbrook, staged a fine group, including some excellent forms of *Cattleya Mossiæ* and *Mendelii*, *Læliocattleya Aphrodite* and *Helius*, the latter a good yellow hybrid, *Chysis Sedenii*, *Renanthera Imschootiana*, a fine *Oncidium Gardneri*, *O. Kramerianum*, the fragrant *Epidendrum ionosmum*, *Vanda Parishii*, *V. cœrulescens*, and others (Silver Banksian Medal).

Messrs. J. & A. McBean, Cooksbridge, staged a group, including a fine example of *Odontoglossum Pescatorei* with a branched inflorescence, *O. Hyeana*, and others, *Odontioda Lutetia*, *Lambeauiana*, and *Charlesworthii*, some good *Miltonia vexillaria* and *M. Hyeana*, *Cattleya Mossiæ*, *Læliocattleya Aphrodite* and *Helius*, the latter a good yellow, and others (Silver Banksian Medal).

Messrs. Flory & Black, Slough, sent two good examples of *Disa Luna*, *Cattleya Mossiæ Wageneri Langley* var., a very fine thing, *C. Dusseldorffii Undine*, *Læliocattleya Domallus* (*Dominiana* × *Pallas*), with lilac-coloured sepals and petals and a rich purple lip, L.-c. *apricosa* (L.-c. *Ophir* × *C. Schroederæ*), having light buff ground colour, the petals tinged with purple, and the lip with a zone of darker purple, and L.-c. *Gladiator*.

FIRST-CLASS CERTIFICATES.

CYPRIPEDIUM CURTISII SANDERÆ.—A very charming albino, bearing four well-developed flowers, the dorsal sepal striped with green on a white ground, and the rest of the markings green. The absence of the purple colour extends to the leaves, and by this character it was picked out and set aside three years ago for flowering. It has the strongly variegated leaves of the *C. Curtisii nobilior* type. Exhibited by Messrs. Sander & Sons.

ODONTOGLOSSUM MENIER VAR. ST.-VINCENT (*gandavense* × *amabile*).—A handsome thing, having the sepals and petals tinged with lilac and much blotched with claret colour below, while the lip is white in front and barred with claret-purple behind. Exhibited by J. Gurney Fowler, Esq.

ODONTOGLOSSUM PRINCESS MARY.—The handsome hybrid which received an Award of Merit at the Chelsea Show (see page 186), and which now gained the higher award. Exhibited by J. Gurney Fowler, Esq.

AWARD OF MERIT.

ODONTOGLOSSUM CRISPUM PERFECT GEM.—A very beautiful variety, having broad white segments with a large purple blotch on each, forming a zone of colour about the middle (see page 217, fig. 26). Exhibited by W. Thompson, Esq.

The Orchid exhibits on June 22nd—the meeting preceding the Holland House Show—were not numerous, and the awards consisted of two medals to groups, and two Awards of Merit.

Orchid Committee present: Sir Harry J. Veitch (in the Chair), J. O'Brien (hon. sec.), J. Wilson Potter, R. A. Rolfe, Pantia Ralli, Sir Jeremiah Colman, Bart., T. Armstrong, Walter Cobb, J. Charlesworth, W. H. Hatcher, Arthur Dye, S. W. Flory, C. J. Lucas, W. Bolton, R. Brooman White, Gurney Wilson, and J. Gurney Fowler.

W. Thompson, Esq., Walton Grange, Stone (gr. Mr. J. Howes), received a Silver Banksian Medal for a group of choice *Odontoglossums* in well grown examples, with a plant of the beautiful white *Dendrobium Schuetzei* bearing five large flowers. Among the *Odontoglossums* we noted *O. crispum* Palatine, *O. c.* Dorothy Arkle, and a good white form, also several blotched hybrids.

Sir Jeremiah Colman, Bart., Gatton Park, Reigate (gr. Mr. Collier), sent four distinct and beautiful forms of *Odontioda Papilio* which are noted on page 208, a richly-coloured form of *O. Margaret*, *Cattleya Mendelii* Lady Colman, a beautiful white with the front of the lip of a delicate rosy-lilac shade, and a fine form of *Læliocattleya Canhamiana*.

J. Gurney Fowler, Esq., Brackenhurst, Pembury (gr. Mr. Davis), sent a pretty blush pink form of *Cattleya Mendelii*, a good *C. Mossiæ Wageri*, *Brassocattleya Princess Elizabeth*, *Odontoglossum Ceres*, and two others which gained awards.

R. G. Thwaites, Esq., Chessington, Streatham (gr. Mr. Hannington), staged a small group, including four seedling *Cattleya Mossiæ Wageri*, and two or three good coloured forms, *Læliocattleya Canhamiana* and *L.-c.* Cowanii, a seedling *Odontoglossum eximium xanthotes*, white with two small yellow spots on the lip, and two *Odontoglossum Lambeauianum*.

Messrs. Stuart Low & Co., Jarvisbrook, staged a small group of good things, several examples of *Cattleya Mossiæ*, *Mendelii*, and *Warscewiczii*, the rare *C. Whitei*, three *Renanthera Imschootiana*, *Læliocattleya Cowanii*, *Rhyncostylis retusa*, *Oncidium pulvinatum*, and a few others, (Silver Banksian Medal).

Messrs. Sander & Sons, St. Albans, sent a home-raised form of *Læliocattleya Gottoiana* (*L. tenebrosa* × *C. Warneri*), with five large purple flowers.

AWARDS OF MERIT.

LÆLIOCATTLEYA CANHAMIANA FOWLER'S VAR. (*L. purpurata* × *C. Mossiæ*).—A very fine variety, bearing an inflorescence of three very richly-coloured flowers. Exhibited by J. Gurney Fowler, Esq.

ODONTIODA RED-CROSS (*Oda. Goodsoniæ* × *Odm. armainvillierense*).—A charming hybrid, having rich red flowers with a narrow margin, and the lip broad, blotched with red on a white ground, and the crest yellow. The lip shows a strong resemblance to *O. Pescatorei*, which comes in through both the parents. Exhibited by J. Gurney Fowler, Esq.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

At the meeting held at the Coal Exchange, Manchester, on Thursday, June 3rd, the members of Committee present were: R. Ashworth, Esq., (in the Chair), Messrs. J. C. Cowan, J. Cypher, J. Evans, P. Foster, A. Hanmer, A. R. Handley, Dr. Hartley, J. Lupton, D. McLeod, W. Shackleton, S. Swift, H. Thorp, and H. Arthur (Sec.).

Large Silver Medals were awarded to R. Ashworth, Esq., Newchurch (gr. Mr. Gilden), and to Col. J. Rutherford, M.P., Blackburn (gr. Mr. Lupton), for very fine miscellaneous groups.

A Special Vote of Thanks was awarded to O. O. Wrigley, Esq., Bury (gr. Mr. Rogers), for a very fine series of *Miltonia vexillaria* varieties, with *Odontiodas*, *Anguloa Clowesii*, and *Cœlogyne pandurata*.

Silver Medals were awarded to Messrs. Cypher & Sons, Cheltenham, Messrs. Sander & Sons, St. Albans, and The Liverpool Orchid & Nursery Co., Gateacre, for fine groups.

Interesting exhibits were sent by Mrs. R. le Doux, West Derby (gr. Mr. J. W. Fletcher), S. Gratrix, Esq., Whalley Range (gr. Mr. Field), Messrs. Stuart Low & Co., Jarvisbrook, Sussex, Messrs. A. J. Keeling & Sons, Bradford, and Mr. W. Shackleton, Bradford.

FIRST-CLASS CERTIFICATES.

Cattleya Mossiæ Wageneri Ashlands var., a large white flower, with distinct markings in the throat, and *Miltonia Hyeana* Ashlands var. (*vexillaria* *G. D. Owen* × *Bleueana Stevensii*), from R. Ashworth, Esq.

Cattleya Mossiæ alba var. Mrs. R. le Doux, a fine flower with good lip, from Mrs. R. le Doux.

Cattleya Warneri alba memoria A. C. Madoux, from Messrs. Stuart Low & Co.

AWARDS OF MERIT.

Odontoglossum illustrissimum var. *Scipio*, *Cattleya Mendelii* King

Albert, *Læliocattleya Fascinator* var. Mermaid, and L.-c. *Cowanii* Ashlands var., from R. Ashworth, Esq.

Cattleya Mossiæ Reineckiana Marlfield var., and *Magali Sander*, from Mrs. R. le Doux.

Cattleya Mendelii Fascination, and *Sophrocattleya Thwaitesii* Jarvisbrook var., from Messrs. Stuart Low & Co.

Maxillaria Sanderiana, from Messrs. A. J. Keeling & Sons.

Odontoglossum crispum Irene, from Mr. W. Shackleton.

CULTURAL CERTIFICATE.

To Mr. W. W. Field, gr. to S. Gratrix, Esq., for a fine example of *Dendrobium thyrsiflorum*.

OMISSION FROM LAST REPORT.

The Sander Prizes for the past session were won as follows: 1st and 2nd prizes were divided between Messrs. W. Gilden (gr. to R. Ashworth, Esq.) and J. Lupton (gr. to Col. J. Rutherford, M.P.), who tied with equal points; 3rd prize to Mr. J. Howes, gr. to Wm. Thompson, Esq.

The following Competitions have been arranged for the session, and the Committee desire to express their thanks to the donors:—

Messrs. Cypher & Son's Gold Medal and Prize to Gardener, for arrangement.

Mr. J. J. Bolton's Medals and Prizes to Gardeners, for *Cypripediums*.

Botanic Society of Manchester's Gold Medal, for *Odontiodas*, *Miltonias*, &c.

Messrs. Charlesworth & Co.'s *Objet d'Art* and Prize to Gardener, for New Plants.

Mr. A. Hanmer's Silver Cup and Prize to Gardener, for most points during the session.

Messrs. Hassall & Co.'s Silver Cup and Prize to Gardener, for *Cattleyas*.

Mr. J. J. Oakshott's Prizes to Gardeners, for Culture.

Mr. P. Smith's Prizes to Gardeners, for Groups.

Mr. Z. A. Ward's Silver Trophy and Prize to Gardener, for *Odontoglossums*.

The Society's Medals will also be awarded as previously.

In the event of a First-class Certificate being awarded, the owner of the plant is asked to present a true Painting of the flower to the Society.

At the meeting held on June 17th the members of Committee present were: R. Ashworth, Esq. (in the Chair), Messrs. J. C. Cowan, J. Cypher, J. Evans, P. Foster, A. Hanmer, J. Lupton, D. McLeod, F. K. Sander, W. Shackleton, S. Swift, H. Thorp, and H. Arthur (Sec.).

A Silver-gilt Medal was awarded to Col. J. Rutherford, M.P., Blackburn (gr. Mr. Lupton), for a very fine miscellaneous group.

Large Silver Medals were awarded to R. Ashworth, Esq., Newchurch (gr. Mr. W. Gilden), and A. Hanmer, Esq., Chester (gr. Mr. B. Wilson), for fine general groups.

Silver Medals were awarded to Messrs. Cypher & Sons, Cheltenham, Messrs. Hassall & Co., Southgate, and Messrs. Sander & Sons, St. Albans, for fine groups.

Interesting exhibits were sent by O. O. Wrigley, Esq., Bridge Hall, Bury (gr. Mr. E. Rogers), S. Gratrix, Esq., Whalley Range (gr. Mr. W. Field), Thos. Butler, Esq., Pleasington, P. Smith, Esq., Ashton-on-Mersey (gr. Mr. E. Thompson), and Messrs. A. J. Keeling & Sons, Bradford, several of which appear in the Award List.

Messrs. A. J. Keeling & Sons, Bradford, staged *Odontoglossum Rolfeæ*, *amabile*, and *Harryano-triumphans*; *Odontioda Schroederi* var. *virginale*; *L.-c. Martinetii*; *Dendrobium Thwaitesiae* Veitch's var., and others.

FIRST-CLASS CERTIFICATES.

Cattleya Mossiæ Wageneri Baron Schröder's var., a well-shaped form, with the yellow markings on the lip very pronounced, and *C. Sybil* var. *R. Ashworth*, from R. Ashworth, Esq.

Cypripedium Curtisii Sanderæ (the albino of the type), the flowers of a green shade, with a good margin of white on the upper sepal and tips of the petals, from S. Gratrix, Esq. A Silver Medal was also awarded.

Cattleya Mossiæ pleasingtonensis, a fine well-set flower, with white sepals and petals, and the lip with yellow lines in the throat, from T. Butler, Esq.

AWARDS OF MERIT.

Odontoglossum Cobbiæ Ashlands var. (*Pescatorei Charlesworthii* × *amabile*), *O. Lambeauianum* var. *Lord Kitchener*, and *O. ardentissimum expansum*, from R. Ashworth, Esq.

Cattleya Thurgoodiana Haddon House var. (*Lueddemanniana* × *Hardyana*), from P. Smith, Esq.

CULTURAL CERTIFICATE.

To Mr. E. Rogers, for a plant of *Phalænopsis amabilis Rimestadiana*, with a branched spike carrying 46 flowers, a Bronze Medal being also awarded.

CORYANTHES MACRANTHA.—A fine plant of this remarkable Orchid was exhibited by Messrs. Sander and Sons at the R.H.S. meeting held on July 8th, and it has bloomed twice at Kew within the last few weeks. It is one of several remarkable Orchids that in their native homes are usually guarded by a garrison of ants, these finding a congenial home among the roots, and in return protecting the plant from the attacks of cockroaches. An illustration of *Coryanthes macrantha* at home was given

at page 41 of our third volume, with a very interesting note by Mr. James Rodway as to the natural conditions under which it grows. The details of the fertilisation of the flowers by bees are not less remarkable than their structure, and are given at page 338 of our second volume.



ORCHIDS AT KEW.



SEVERAL very interesting Orchids are in bloom in the Kew collection. A plant of the rare Central American *Epidendrum porpax* is flowering very freely, its short-scaped, solitary purple flowers recalling to some extent the smaller *E. Matthewsii*, both of them belonging to the section *Nanodes*. *Camarotis obtusa* is another rarity, a native of the Himalayan district, and recalling somewhat *C. purpurea*, but bearing drooping spikes of light rosy flowers with a large orange-coloured crest on the lip, which gives it a very distinct appearance. *Oncidium Waluewa* is a charming little thing, bearing a short panicle of flowers barred with purple on a white ground. It was made a distinct genus by Regel, but the flowers are almost identical in shape with those of the *Oncidium pubes* set. *Eulophia paniculata* is a distinct Madagascar plant bearing rather narrow, somewhat mottled leaves, and a tall panicle, nearly six feet high, of light green flowers, with some white and purple on the lip. *Pleurothallis lilacina* is a Brazilian species having broad fleshy leaves and a profusion of short spikes of lilac-purple flowers, the whole plant only a few inches high. *Listrostachys forcipata* is bearing five spikes of its very pretty semi-pellucid white flowers, and its equitant leaves recall those of *Oncidium iridifolium*, to which it bears some resemblance in habit.

Megaclinium minutum is one of the smallest species in the genus, and is bearing several spikes of its red-purple flowers, situated on either side of a curious flattened rachis of similar colour, making it quite an attractive little plant. *Nephelaphyllum pulchrum* var. *sikkimense* is the Sikkim form of a Malayan species, from which it differs somewhat in its stouter habit. The leaves are variegated, and the flowers are borne in a short erect spike. *Schomburgkia Thompsoniana*, a species from the Cayman Islands, in the West Indies, is producing a panicle of yellowish flowers with the front lobe of the lip blackish purple in colour. Another rare and interesting plant is *Catasetum Bungeothii aureum*, one of the handsomest of the *Catasetums*, now bearing several large light yellow flowers. A plant of *Bulbophyllum viridiflorum* is bearing a fine umbel of large green flowers, and the way they radiate in a whorl, with the dorsal sepals thrown back and forming a pyramid in the centre, is very striking. The yellow *Trichopilia Galeottiana* is one of the rare kinds, and is in bloom near a plant of *T. tortilis*, while hanging up near by are plants of *Stanhopea gibbosa* and the

remarkable *Coryanthes macrantha*, one of the largest and most remarkable species of this quaint genus. Many others could be enumerated, and there is a fine display of the usual showy species of the season.



ORCHID NOTES AND NEWS.



THE next ordinary meeting of the Royal Horticultural Society will be held at the Royal Horticultural Hall, Vincent Square, Westminster, on July 20th, when the Orchid Committee will meet at the usual hour, 12 o'clock noon. There are meetings of Special Societies on two other dates, but the Orchid Committee will not meet again until the ordinary meeting on August 4th.

The Manchester & North of England Orchid Society will hold meetings at the Coal Exchange, Manchester, on July 8th and 22nd. The Committee meets at noon, and the exhibits are open to inspection from 1 to 4 o'clock p.m.

A flower of *Læliocattleya Hoylei* has been sent by Mr. Alwyn Harrison, Hame, Redbourne, Herts. It is a very promising hybrid raised by him from *Læliocattleya Martinetii* × *Sunset*, and may be described as flame coloured, with a light purple front lobe to the lip. The latter is more open than in many hybrids derived from *Lælia cinnabarina*, and the flower is large and very attractive.



ANSWERS TO CORRESPONDENTS.



[Orchids are named and questions answered here as far as possible. Correspondents are requested to give the native country or parentage of plants sent. An ADDRESSED postcard must be sent if a reply by post is desired (abroad, reply postcards should be used). Subjects of special interest will be dealt with in the body of the work].

J.H.—*Angræcum armeniacum*, Lindl.

W.B.—*Dendrobium clavatum*, Wall.

T.D.A.C.—*Epidendrum aromaticum*, Batem. The *Castasetum* could probably also be identified from a dried flower, and we shall be pleased to make the attempt. *Lycaste Skinneri alba* only differs from the type in the absence of colour.

C.A.—Probably *Gongora bufonia*, Lindl. Please do not pack flowers in cotton wool unless first wrapped in tissue paper. We shall be pleased to name others.

E.V.L.—We will report on the plant in a post or two.

G.E.S.—A hybrid of *Odontoglossum Thompsonianum*, but the other parent is uncertain at present.

F.J.H.—*Dendrobium speciosum*, Sm., an Australian species. It is interesting to know that it grows outside at La Mortola.



The Orchid Review



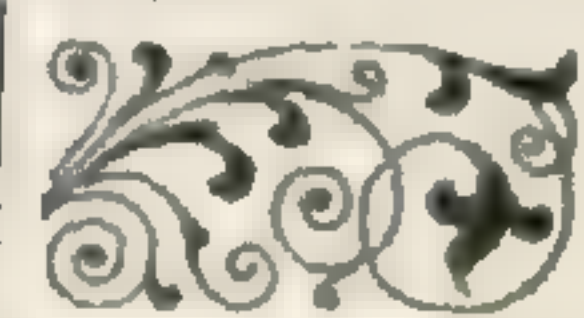
VOL. XXIII.

AUGUST, 1915.

No. 272.



OUR NOTE BOOK.



OCCASIONALLY a horticultural meeting is distinguished by the appearance of some great outstanding novelty, and this was the case with the R.H.S. meeting held on June 8th last, when Messrs. Sander & Sons exhibited a beautiful albino of *Cypripedium Curtisii* bearing four flowers. It was called *C. Curtisii Sanderæ*, and received the award of a First-class Certificate. The purple of the type has completely disappeared, leaving a clear green and white flower, comparable with *C. callosum Sanderæ* as regards colour, but with the characteristic shape of *C. Curtisii*. It was picked out of a batch of *C. Curtisii* received three years ago on account of the absence of purple from the leaves, in which case it is analagous with *C. callosum Sanderæ* and *C. Lawrenceanum Hyeaenum*, and it is now proved that the albinism is equally perfect in the flower. It is a valuable acquisition to the group of summer-flowering forms. The ivory-white marbling and bright green reticulation of the leaves is also very beautiful.

The Great Summer Show at Holland House was marked by the appearance of a splendidly-grown *Odontoglossum* from the collection of J. Gurney Fowler, Esq., to which both a First-class Certificate and a Lindley Medal were given, the latter in recognition of its excellent culture. It was originally raised by Messrs. Charlesworth & Co., from *Odontoglossum Rolfeæ* crossed with some other *O. Harryanum* hybrid, and received an Award of Merit two years earlier. It possesses a most robust constitution, and on this occasion bore a strong branched panicle, with twenty-eight flowers. Their character may be seen in the figure given on page 240.

This meeting produced a very fine display of Orchids, and was favoured by brilliant weather on the opening day. Ten fine groups were staged, mostly by trade growers, but the one from Sir Jeremiah Colman, Bart., to which a Gold Medal was awarded, ably maintained the reputation of amateur exhibitors. The arrangement of the groups was of that excellent kind which we have been taught to expect of recent years. As regards

their composition it may be said that summer-flowering hybrids were represented in great force, and an introduction of *Anguloa Cliftonii*, has led to a great increase in the exhibits of this striking species, while Messrs. Sander & Sons sent a remarkable natural hybrid from the importation that is described on page 255. Perhaps the other most outstanding plant was the beautiful albino *Læliocattleya Fascinator-Mossiae* var. *Moonlight*, for which Messrs. Charlesworth & Co. received an Award of Merit. It bore only two flowers and has probably not yet reached its full development.

The next meeting was marked by the appearance of another remarkable plant, under the name of *Bulbophyllum Balfourianum*, for which Messrs. Sander & Sons received an Award of Merit. It is a native of New Guinea, and much resembles the striking *B. Fletcherianum* in habit and in its curious glaucous leaves. The sepals, however, are considerably shorter, giving a different appearance to the flowers. These, apart from shape, are not unlike those of a *Stapelia*, being closely dotted with lurid purple on a pale yellowish ground. The odour serves to complete the resemblance. A description will be found on page 256.

So much for the meetings, but objects of interest may be met with elsewhere, as witness the following note from an interesting article by G. G. Desmond, entitled "Out of doors in July." He remarks:—

"I have just partaken in an exciting flower pilgrimage. A friend of mine, who has known it long, took me to the habitat of *Cephalanthera rubra*, the rose-pink helleborine. Happy the readers who know where to find so rare a thing. For it is not only hard to meet with, but one of the most strikingly beautiful of all wild flowers."

Some of our Orchidists might perhaps not share the opinion, but it is certainly a charming little plant, and we can understand the enthusiasm with which its appearance would be welcomed in the one solitary locality in which it is native in Britain, and among its native surroundings. Long may it flourish there! On the Continent the plant is well known, but our single British station should be rigorously preserved.

Speaking of British Orchids reminds us that there are several which are excessively rare or local, in some cases both. *Malaxis paludosa* is a tiny little plant found only in a few boggy districts, and there inconspicuous enough to be overlooked unless specially looked for. *Liparis Læselii* is another rarity of which some time ago we received a living example from Norfolk. *Orchis purpurea*, *Simia*, and *hircina* are occasionally met with on the chalk, and *Epipogon aphyllum* is believed to be extinct. The latter remarks recalls an interesting press-cutting which must be deferred.

 THE MECHANISM OF HEREDITY.

(Concluded from page 200).

WE have now seen how the process of sexual reproduction grew directly out of the earlier process of reproduction by vegetative bipartition, and by a series of progressive modifications, beginning with the fusion of two specialised motile cells that are externally indistinguishable, and ending with those between which the widest diversity exists. In its initial stages the new process probably began as a reaction against seasonal exhaustion, for it has been observed in primitive groups that when these specialised cells (gametes) fail to conjugate they are subsequently able to vegetate independently, though they do not acquire the vigour of individuals formed by the new method. It is the union of these specialised cells into a new body, called the zygote, which thenceforth is able to develop into a new individual, that introduces the sexual process. All earlier cells are produced by vegetative bipartition, a process that ultimately leads to exhaustion, and against which the sexual method may be regarded as a reaction, for in the higher groups the gametes completely lose the power of independent growth.

The union of the gametes takes place by the fusion of the nuclei and the contained chromosomes, and here we see the significance of the reduction division that has already been mentioned. The union of two nuclei doubles the number of chromosomes, and were the process repeated at each conjugation it would soon lead to an impossible condition of things. This is provided against by the particular division of the nucleus known as the reduction division, which results in the gamete having only half as many chromosomes as the vegetative cell, and at the same time limits the power of independent growth in the gamete until the normal number of chromosomes is restored in the sexual act. It is a fundamental distinction, that has been retained by the nucleus through its ever-increasing complexity in the higher groups. The change is itself an adaptation, and it is not difficult to form an inference as to the way in which it has been brought about.

The next consideration is that the two conjugating cells, however diverse in size and appearance they may be, take an equal part in forming the characters of the new individual, and this results from the fact that it is the nucleus that is the bearer of hereditary qualities. The female cell is chiefly differentiated by possessing a mass of nutrient matter, called cytoplasm, whose chief function is the nourishment of the new organism. In the male cell no such provision is necessary, hence the cytoplasm is

reduced to a slender layer separating the nucleus from the cell wall. But whether the two conjugating cells are externally similar or widely diverse the ultimate result is the same, and the question is what are the events which precede and follow the fusion of the nuclei, for the two are only phases of the same question. The later phase may be taken first.

The nucleus of the cell is a very definite organ, and has been defined as consisting of a fine network of fibres and a definite number of bodies called chromosomes, supposed to be the bearers of hereditary qualities. The gametes are only specialised sexual cells, and their nuclei are only differentiated from the vegetative nucleus by their condition and behaviour. Their union originates a new vegetative nucleus, which, after an indefinite number of divisions by vegetative bipartition, again produces sexual nuclei, and thus the changes are rung from generation to generation.

The fusion of two nuclei in the sexual act is followed by a period of quiescence, during which a new cell-wall is formed round the combined protoplasmic mass, and the fibres of the united nuclei go through a complicated process of development, by which they are completely incorporated together before starting on their new cycle of vegetative activity. This is the act which, after a longer or shorter period of quiescence, originates the new generation. One cannot watch the phases of the process, but the details have been gathered from the observations of numerous independent experimenters in this difficult field, many of which have tended to confirm or amplify the records of previous observers. If one could place the cells and their nuclei in a sort of observatory hive, and watch their workings in the field of a powerful microscope, one might describe how it all takes place. As it is, inferences must be made from observed facts, which are rapidly accumulating.

The broad results are open for everyone to read, and nothing is more familiar than the way the members of the vegetable kingdom develop from the seeds of a previous generation, and how they produce flowers and seed for a future one; or, again, the various ways in which they may be propagated asexually by sub-division, as cuttings, buds, grafts, and other methods of horticultural practice.

We must now return to the earlier but unfamiliar phase of sexual reproduction, represented by the reduction division, and this brings us to the question of hybridisation and reversion, with which we started out. The phenomena of reversion can only be demonstrated where the parents possess visibly distinct characters, and nothing is now more familiar to hybridists. The cause, however, is still to be largely inferred from the effects, hence the wide diversity of opinion that has been expressed upon the subject. One thing, however, is clear, and that is that the cause of

variation and reversion is associated with details introduced by the sexual process or with the phenomena that precede it.

When gametes produced by distinct species fuse together the result is a hybrid, in which the characters of the two parents are combined, often forming a more or less intermediate blend. It matters not—as a general rule—which parent was the seed bearer, for in the majority of cases reciprocal crosses are substantially identical, as also are successive crosses obtained between normal individuals of the same two species. Such hybrids are termed primary hybrids, and their behaviour indicates clearly that the mere act of crossing is not the cause of variation.

But when primary hybrids are self-fertilised or recrossed with their parents, or with something else, the result is usually a batch of hybrids showing great diversity, and this variety indicates a want of uniformity in the characters of the gametes from which they were derived, and shows that something has happened in the interval between the origination of the hybrid and the formation of its reproductive cells. This condition of things either indicates an imperfect blending of the original conjugating nuclei or a separation of characters when the hybrid comes to form its own reproductive cells, which are known collectively as the germ plasm. The former is almost certainly the case, though either would indicate incompatibility between characters derived from distinct ancestries. Incompatibility would manifest itself at once, and would naturally be reflected in the reduction division. Indeed, incompatibility can often be witnessed, when characters and tissues from diverse ancestries are developed side by side, thus demonstrating the well-known phrase that a hybrid is a mosaic.

A complete blending of character would result in a batch of uniform secondary hybrids, and Mendel himself appreciated the fact when he pointed out that hybrids in which the diverse elements were permanently accommodated together reproduced themselves true from seed, and had all the attributes of species. It is often assumed that it is in the reduction division that the redistribution of characters takes place, and that it is governed by nothing stronger than the law of chance. If the former condition has no stronger element of probability than the second we should, in the absence of positive evidence, unhesitatingly reject it. Nature understands her own business better than that. Hybridisation is not a new process, it merely unites gametes of diverse instead of the same ancestry, and all its processes are otherwise identical.

Another point that tells in favour of this contention is the substantial identity of the phenomena indicated with the separation of mixed character seen in sports and in graft hybrids, in which the aid of a reduction division cannot be invoked. Sports are almost invariably seen in plants of mixed ancestry—hybrids or hybrid derivatives—while graft hybrids combine

protoplasms of diverse origin by a non-sexual process. This identity is not always admitted, and we have seen attempts to produce the graft hybrid known as *Cytisus Adami* by sexual means, though without success. The inference is that the obstacle is a mechanical, not a physiological one, and such obstacles are not unfamiliar to hybridists. Several other graft hybrids are known, and it would be interesting to attempt to reproduce them by the sexual method, for mechanical obstacles may not always exist. Their constancy from seed might also be tested, for we believe that some of them are fertile. The experiment has failed with *Cytisus Adami*, because its flowers are barren, while the branches that revert to the yellow *Laburnum* produce seeds in the ordinary way.

A final question remains for consideration, namely, the precise way in which the hereditary qualities are borne by the chromosomes, but this would lead us too far into the regions of speculation. The number of chromosomes among plants bears no definite relation to the number of characters possessed by the individual, being generally much fewer, and the loss of a character does not involve the corresponding loss of a chromosome. The question of chromosomic development is now being extensively investigated in connection with the origin of mutations, but the results, so far as we have been able to gather, do not throw much light upon the question of reversion among secondary hybrids.

We are inclined to regard reversion as a mere accidental accompaniment of a fundamental process, a sort of by-product of sexuality due to imperfect blending or re-separation through incompatibility of hereditary qualities derived from diverse ancestries. Sexuality arose directly from the earlier method of reproduction by vegetative bipartition, and as a means of recovering exhausted vitality, probably due to seasonal variation. At first a mere protective phase, the advantages secured by this combination of forces were such as to secure its continuance, and by progressive development under changing environment it has come to replace more and more the older method, while disadvantages have been got over by the disappearance of unsuccessful combinations under the evolutionary process.

The nucleus of the vegetative cell gives rise to the reduced nucleus of the gametes in the germ plasm, and the gametes which unite to form the new individual may be those of the same or of a diverse species, according to opportunity. In the latter case a hybrid is formed, in which incompatibility may manifest itself, and this would result in the production of gametes of diverse character when the germ plasm came to be formed, and their subsequent union in the sexual process would inevitably produce the phenomena of variation and reversion with which we are now so familiar in batches of secondary hybrids. Species produce uniform gametes, hence the degree of uniformity seen among primary hybrids.

R.A.A.

 ORCHID EXHIBITS FIFTY YEARS AGO.

THE reports of some of the early meetings of the R.H.S. stand in the greatest contrast with those of to-day, and an account of a "Scientific Meeting," held on June 18th, 1867, will be read with interest. The occasion was a lecture by Mr. James Bateman, with Sir R. Murchison in the Chair, and was preceded by some remarks on the plants exhibited, which was then one of the features of the meetings—short "lecturets" they have been called, in which Mr. Bateman succeeded in conveying "a great deal of valuable and interesting information in a pleasant gossiping style." The report is taken from the *Gardeners' Chronicle*.

Mr. Bateman said that though all knew the splendid specimens of Orchids which Mr. Anderson, Mr. Dawson's gardener at Meadow Bank, was in the habit of exhibiting from time to time, yet he had never seen finer than those which he exhibited on this occasion. Beautiful as his bunch of *Odontoglossum Pescatorei* was, it only represented a fraction of the blossom on the plant from which it was cut, and on which no less than 300 flowers were counted. But glorious as Mr. Anderson's *Odontoglossum* was, even it was surpassed by the cut specimen of *Aërides Fieldingii* from Lord Egerton of Tatton, which was the most magnificent example of that species which had ever been exhibited, and to which, on the recommendation of the Floral Committee, the Lindley medal had been awarded. Mr. Bateman then noticed two or three small species of Orchids, and especially the little carmine-coloured *Odontoglossum roseum*, which, though beautiful *in minimis*, as now exhibited for the first time, would present a still more striking appearance when larger specimens were obtained. *Miltonia spectabilis*, of which his own gardener had sent a fine variety, called *rosea*, was mentioned, as having been obtained from Brazil by Messrs. Low; likewise the Mexican *Epidendrum vitellinum*, from Mr. Anderson, which was figured twenty-five years ago by Dr. Lindley, from dried specimens; but when the plant was flowered seven years later by Mr. Barker, everyone considered the drawing exaggerated, so poor were the blossoms then. Now, however, that the cultivation of the plant—which comes from an elevation of 7,000 to 8,000 feet—is conducted on the cool, that is the sensible, mode of treatment, the original representation was seen to fail in doing justice to its beauty. Beautiful, however, as Mr. Anderson's example of this *Epidendrum* was, Mr. Bateman said he had seen one far superior a day or two before at Mr. Day's at Tottenham. *Dendrobium Bensoniæ* from Messrs. Veitch was a very promising addition to that beautiful genus. Coming now to the immediate object of his lecture, *Lælia majalis*, or *Flore de Maio*, it was, he said, one of the few Orchids that was fortunate

in having a history as well as a name—in fact many names, the native one being Itzumaqua ; besides which it had two or three Spanish, and three or four Latin names. It was all very well for old Rumphius to say that Orchids are the aristocrats of the vegetable kingdom, but not one in a hundred of them had ever been heard of before the present century, and in classical or heroic ages they were unknown. No one, not even the Chairman, had ever found a fossil Orchid. Any Orchid, then, whose history could be traced back to the conquest of America would hold a distinguished place.

It had been said that when the French took possession of a settlement the first thing they did was to establish a *café*, just as in a like manner the Spaniards were in the custom of erecting a church. For the elaborate services of these churches the Spaniards, being ignorant of the resources of their new possessions, at first carried with them their old world flowers ; but they soon discovered the value of Orchids for church decoration. In connection with this part of his subject he might mention that his late friend, Mr. Skinner, had sent home from Guatemala some bulbs, which proved to be no other than the common white lily, which had doubtless been taken out for the very purpose, and had run wild. The value of Orchids for church decoration having been discovered, they were largely employed for the purpose, and the names of the saints' days, and festivals for which their flowering season suited, were applied to them, and of these Mr. Bateman cited a number, of which "Flore de Maio" was one. Knowing the extensive use of Orchids in church decoration, Mr. Skinner, when he wanted to know what Orchids grew in a district, always went to the church to look at the altar decorations.

To proceed with the history of *Lælia majalis*, the first naturalist who went to Mexico was Hernandez, who published, in 1648, at Rome, a book, in the frontispiece of which two Orchids were represented, one of which was the beautiful *Lælia majalis*. Humboldt was the next to notice it, under the name of *Bletia speciosa*, as one of those beautiful Orchids, the recollection of which, as he was once assured by that illustrious traveller himself, no time could efface. About the same time Lexarza, who went out to Valladolid, in the province of Mechoacan, failing to recognise the plant as described by Humboldt, called it *Bletia grandiflora*. His description of this and other Orchids so impressed the youthful Reichenbach that he wanted to visit Mexico himself ; but this proved unnecessary, for Mr. Barker dispatched a traveller thither, who sent a number of plants of the *Lælia*, which, arriving in mid-winter, were sent home in blankets, but none of them ever flowered, and the whole of them disappeared in a year or two. Next, M. Deschamps, in 1837, brought home a cart-load, for which he at first asked enormous prices, but eventually he was glad to sell the plants

almost for nothing. These, too, all disappeared without flowering, except one which was purchased by Mr. Dillwyn Llewellyn, and which was figured in the *Orchids of Mexico and Guatemala* (t. 23), and by Dr. Lindley in the *Botanical Register* (1844, t. 30). The drawing in the former work was made under Dr. Lindley's direction, and, under some misapprehension, three flowers were represented on the scape; but never, except under exceptional circumstances, did it produce more than one.

Just as Humboldt failed to make his description intelligible to Lexarza, so did the latter to Lindley, who called the plant first *Cattleya Grahami*, and



Fig. 31. LÆLIA MAJALIS.

(A group grown in the collection of O. O. Wrigley, Esq., Bridge Hall, Bury, by Mr. E. Rogers, under conditions described at page 266 of our ninth volume. These, it will be noted, differ considerably from the treatment here described by Mr. Bateman.)

afterwards *Lælia majalis*, and though Reichenbach wishes to go back to *Bletia speciosa*, *Lælia majalis* it is to cultivators, and so it ever will be. He would wish it to be noticed that while Lexarza described the flowers as a span across in their native wilds, Mr. Dawson's specimens were not a whit inferior. He also pointed out that the Romish festival of Corpus Christi (whence the *Lælia* derives its name of the "Flor di Corpus") took place that very week.

Mr. Bateman said that he approached, and not without perplexity, the subject of the treatment best adapted for this beautiful *Lælia*, the more so

as it perhaps ought to be considered typical of the proper regime in what was called the "Mexican," as contradistinguished from the Peruvian and other cool houses. At present the treatment pursued with so much success by Mr. Anderson (Mr. Dawson's gardener) varied considerably from that followed by Messrs. Backhouse, of York, who had also succeeded in flowering the plant, and with whom that, if possible, still more glorious Orchid, *Epidendrum erubescens* (the "Flor de San Joseph" of the natives), was likewise coming in flower. Mr. Anderson grows his plants on flat pieces of tile of the same form as the tiles of a house, only somewhat smaller, but the branch-Orchid pots would be found to answer the purpose still better. They are in a low span-roofed house, the temperature of which fell sometimes to the freezing point during the late winter, while in summer, when the sun is vertical, the temperature rises to 80° or more in the day, the house being moderately damp and close, especially at night, when, at this season of the year, it is kept as cool as possible.

The summer treatment of Messrs. Backhouse's (which Mr. B. gave, in the words of a letter from Mr. Wentworth Buller, who has lately visited their establishment), was different in many respects from that of Mr. Anderson, the temperature being lower, the atmosphere drier, and air admitted very freely indeed. Probably it may be found that the success achieved by both these eminent Orchid-growers was in a great measure due to the very decided winter, which, in each case alike, the plants were subjected to.

As regards the summer treatment, there can be no doubt that a plant which—like the *Lælia*—was distributed over a large portion of Mexico, had to submit to many varieties and vicissitudes of climate. Plants, as the late Dean Herbert remarked, do not always grow where they like, but where other plants will let them, and this may be to some extent the case with the *Lælia*. At all events there can now be no doubt whatever that this most beautiful plant is amenable to cool treatment, and with it there will soon be associated (in the Mexican house) a very extensive brigade of beautiful Orchids, which can be tended and enjoyed in a house of which the atmosphere may be as mild and pleasant as that of an ordinary greenhouse.

The Chairman, in returning Mr. Bateman the thanks of the meeting for his interesting lecture, said that though a fossil Orchid had never yet been discovered, he would endeavour to stimulate geologists to search after such, and did not despair of finding such a thing when the geology of the countries where Orchids now abound was thoroughly investigated.

Two Orchids presented by Messrs. H. Low & Co., were balloted for.

 CALENDAR OF OPERATIONS FOR AUGUST.

By W. H. WHITE, for many years Orchid Grower to the
late Sir Trevor Lawrence, Bart., K.C.V.O.

DENDROBIUMS.—The season is now approaching when many of the deciduous Dendrobiums will be completing their growth, and when this has been fully made it is necessary to remove the plants to a cooler and drier atmosphere, where they may receive the benefit of extra sunlight and air, so as to consolidate and thoroughly bring the newly-made growths to maturity. It is not always advisable to remove Dendrobiums from their growing quarters immediately they appear to have finished growth, for it is just about that time that the roots, which have proceeded at an earlier stage from the base of the new growths, become very active, not only in lengthening themselves, but also in throwing out many lateral rootlets. Small as many of these are, they must not be despised, for it is through them that the bulk gathers strength both to flower and to bear uninjured the strain of flowering. It is better, where practicable, to select a position on one side of the house, where more air and light can be admitted and less moisture given them, especially when damping down. This partial removal may be done immediately the leaf at the extremity of the bulb is completed, or where there is any fear of a plant starting into premature growth.

The plants should be gradually exposed to the sun for a longer time than is usual in the morning, and the blinds pulled up a trifle earlier each afternoon. Should there be any dull weather, or sudden changes of bright sunshine and cloud, there will be no necessity for using the shading at every outburst of sunshine, as these plants will stand a considerable amount of solar light at this period. Care must be taken that none of those plants that have completed their growth ever get too dry at the root, or they will be likely to receive a check, which will cause them to finish up suddenly, and immediately afterwards to start into growth buds that should remain dormant till after the flowering season. *D. Wardianum* and some of its hybrids are very apt to do this. In order to retain a vigorous and healthy constitution, everything appertaining to the drying and resting stages must be gradual, and it is necessary that each plant should make but one set of growths annually, and that these growths should be thoroughly ripened.

After a week or two of such treatment in the growing house, the fresh young roots will have worked their way into the compost or around the sides of the pots, when the plants may be removed to another house where they will be far less shaded, and where the atmosphere is drier and less close. No better place can be selected than a vinery from which the fruit has been gathered. In such a house it is generally easy to select positions for the Dendrobiums where they will gradually pass from moderate shade

to clear sunshine, taking care to choose a position where the plants will be free from draughts or cold winds. When fully exposed to clear sunshine, the compost, being filled with roots, dries very quickly, but careful judgment should be exercised in watering. Avoid keeping the roots in a constantly saturated condition. Those plants that are well established in small pots will need water more often than the larger specimens; in either case, when once a thorough watering has been given, the plant should receive no more until the whole compost has become dry. The aim of the grower should be to water the plants just often enough to keep the roots in a healthy condition and to prevent undue shrivelling of the pseudobulbs, also to ripen and consolidate the newly-made growths by affording as much fresh air and sunshine as possible.

Among the early varieties to finish up their growths are *Dendrobium Wardianum*, *crassinode*, *nobile*, *crystallinum*, &c., also a large number of hybrids far too numerous to mention. Those that have not yet finished their growth, as *D. superbum* and its varieties *Huttonii*, *Dearei*, *Burkei*, and *anosmum*, also several of the taller-growing species, *D. Dalhousieanum*, &c., should receive every encouragement as regards heat and moisture until they are so far matured that they too may be gradually dried and hardened off.

Dendrobium Maccarthiæ is a lovely species, but difficult to cultivate for long together. It prefers a *Cattleya* house temperature, with plenty of water at the roots, and the only rest this plant appears to require under cultivation is for a few weeks just previous to flowering. Plants of this species should never be subjected to deep potting; a thin, shallow well-drained compost of *osmunda* fibre answers best. Plants of *D. Phalænopsis* that are in small pots or shallow Orchid pans are now making roots freely and strong rigorous growth. They should be afforded every encouragement until the new pseudobulbs are completed. Elevate the plants as near to the roof glass as possible in the warmest house or plant stove. They delight in as much sun-heat as is possible to give them, and a very thin shading only is necessary, even during the hottest day in summer. When thoroughly well rooted in small pots these plants require almost unlimited supplies of water, with abundance of atmospheric moisture after the house is closed and the shading removed for the day.

Plants of *Dendrobium Bensoniæ* that have recently passed their flowering stage will have made considerable progress with their new growths, and as these commence to push out numerous roots when only a few inches high, no time should be lost in affording fresh compost to those that require it. Repot the plants into a shallow compost of *osmunda* fibre, and place them alongside, and under the same conditions as *D. Phalænopsis*.

The racemose section of *Dendrobium*, as *D. thrysiflorum*, *densiflorum*,

Schroëderi, Farmeri, and Griffithianum will be in the middle of their growing season, and must be generously treated. When these plants commence to send out fresh roots from the base of the young growths they may be repotted if necessary, and if potted firmly in well-drained osmunda fibre it will suit their requirements exactly. These plants thrive best when grown in the Cattleya or Intermediate house. Other species of the racemose section, as *D. Dalhousieanum*, *moschatum*, *fimbriatum*, *suavisimum*, *chrysotoxum*, &c., delight in a warmer atmosphere all through their growing season. Those of the nigro-hirsute section, as *D. infundibulum*, *Jamesianum*, *Jerdonianum*, *Draconis*, *sculptum*, *cariniferum*, and *bellatulum* never require so much exposure to light and air as the deciduous kinds. When not growing they certainly will require less water than at other times, but thorough dryness at the root is not suitable for them. A shady part of the Intermediate house, or the warmest end of the Cool house will suit them.

TERETE-LEAVED VANDAS.—Such plants as *Vanda teres* and *V. Miss Joaquim* have now passed their flowering season, and will require attention. Cut off the stems about two or three feet from the top and insert five or six of them in well-drained pots, with a surface of growing sphagnum moss, tying each stem firmly to neat strong stakes. For a few weeks after disturbance the plants should be carefully shaded, and by that time many young roots will have started, when the plants may be gradually exposed to direct sunlight. The remaining parts of the old stems, if kept well syringed, will soon send out fresh growths, and these new shoots, if they grow well, may be removed next season. During active growth these Vandas should have plenty of sunshine, and copious syringings overhead several times daily. A warm sunny corner of the Mexican house is the best place for these plants, and for the distinct hybrid *V. Marguerite Maron*, which latter will require similar attention soon after the flowers fade. It grows best at the hottest end of the plant stove, where the stems receive full sunlight. A pine stove should also prove a suitable place for them. *V. Hookeriana* is also a hot-growing species. It generally flowers at this season, and after the spikes are cut should be attended to as advised for the others. *V. Kimballiana* and its variety *alba*, also *V. Amesiana*, should be grown in a sunny position in the Cattleya house, where fresh air can circulate freely around them.

CATTLEYAS.—Plants of *Cattleya Warscewiczii* (gigas) that have recently gone out of flower, also those that have completed their season's growth without flowering, should now be exposed to more sunlight and air, and at the same time the supply of water at the root should be gradually decreased. The repotting of this *Cattleya* and its varieties should be done, if needful, about a fortnight after the plants have gone out of flower, as immediately

after this, provided the growths are well ripened, the current season's breaks will send out from their base a large number of roots that will readily enter, and appreciate the new compost, while if the operation of repotting is left to be done later on some of the roots will be injured. After repotting, only sufficient water will be needed to prevent undue shrivelling of the pseudobulbs, or the roots from perishing. A slight shrivelling in the bulbs may be allowed, as they will readily plump again when the plants become re-established. After this they will enter upon a long season of rest, so far as growth is concerned, during which time they should be kept, if possible, in a cool, dry, well-ventilated position in the Mexican or Intermediate house. During winter the dry, airy atmosphere of the Mexican house will suit them exactly.

Cattleya Dowiana, *C. D. aurea*, *C. Rex*, and several of their hybrids are now growing freely, and some are developing their flower buds, and should be kept at the warm end of the house, so that the flowers may develop properly. The tips of the leaves should be within a few inches of the roof glass that receives the most sun, for a good clear light and plenty of fresh air are the most likely agents to induce the plants to flower. After growth is completed, and the flowers are cut, the plants should be treated as previously advised for *C. Warscewiczii*.

MILTONIA VEXILLARIA.—Toward the end of this month the majority of the plants of this species, and several of its distinct hybrids, will have started well into growth, and some of them will need repotting; but before this is done it is necessary that each plant should be closely examined for small thrips, which harbour low down in the growths, and the most effectual method of destroying these insects is to dip the plants into a safe kind of insecticide, and afterwards into clean tepid soft water. *M. vexillaria* requires a rather shallow compost, its numerous fibrous roots preferring to ramble just over or under the surface, therefore the pots or pans should be very well drained. The compost may consist of osmunda fibre, which should be cut up rather small, sifting out the fine moss and dust. Some growers prefer the addition of sphagnum moss, leaf soil, &c., but the best grown plants I have seen exhibited were grown in osmunda only. In repotting, keep the base of the young growths about on a level with the rim of the pot, and pack the fibre in and around the roots with moderate firmness. At first, and until the new growths begin to root freely, water should be afforded sparingly, merely sprinkling the surface of the compost wherever it is dry, but as each plant becomes re-established the quantity of water should be increased. The Cool house will suit them for the present, but when the nights become colder the plants should be removed to the Intermediate house.

EPIDENDRUM PRISMATOCARPUM.—Although the individual flowers of

this species are small, they are, when seen on strong well-developed spikes, very pretty and effective, and specimen plants with eight or ten spikes of bloom are always useful for exhibition purposes. *E. variegatum*, *E. Brassavolæ*, *E. Stamfordianum*, and *E. fragrans* may also be included in this remark. The present is a good time to examine and repot any plants of these species that require it, as the growths now starting will soon root into the new potting material. Pot the plants in the same manner as one would a *Cattleya*, and select a light position for them in the Intermediate house. For a few weeks after root disturbance very little water will be needed, but when the roots are seen creeping through the soil, enough water should be afforded to keep the material moist, but as soon as the new pseudobulbs are freely matured very little water will be required till the flower spikes show. *Epidendrum atropurpureum* (*macrochilum*), and its variety *album*, are also worth attention. Both species grow well in shallow pans suspended from the roof of the Mexican house, and as at the present time the young growths are well advanced, repotting may be attended to. Both plants will root freely if potted firmly in well-drained osmunda fibre.

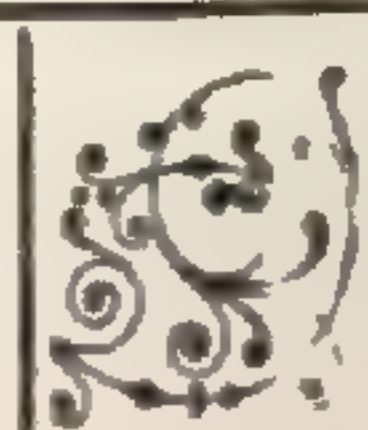
COOL HOUSE.—In this division there are nearly always some plants that need repotting. Among the most important at the present time are such *Maxillarias* as *M. luteoalba* (*Turneri*), *fucata*, *grandiflora*, *Lehmannii*, *Hubschii*, *lepidota*, *tenuifolia*, *picta*, *Mooreana*, and many others. For such species as *M. Sanderiana*, *Amesiana*, and *præstans* shallow teak wood baskets are preferable to pots, as generally their flowers appear in a downward direction. All of them grow well in a mixture of *Ar* fibre and osmunda fibre, and it is necessary that these materials should be pressed quite firmly around the base of the plants. *Cochlidium Noëtzliana*, *vulcanica*, and *sanguinea*, also many small-growing *Oncidiums*, including *O. concolor*, *Phalænopsis dasytyle*, *nubigenum*, *Lawrenceanum*, *Mantini*, *cucullatum*, *spilopterum*, also the stronger-growing *O. Marshallianum*, *varicosum*, and others that have started into growth may also be repotted. Such plants as *Odontoglossum Uroskinneri* and *O. bicktoniense*, now in bloom, should not be afforded much water at the root, being liable to injury from too much moisture. *O. nebulosum*, now beginning to grow, is easily injured in the same manner.

DISA GRANDIFLORA is now in bloom, and as the flowers are liable to be infested with green fly they should constantly be examined. The brush and sponge are the best means of getting rid of *Aphis*, afterwards laying the plants on their sides, and syringing them till quite clean. It is not advisable to vaporise or fumigate these plants at any time, the foliage being very tender and liable to injury. The plants should be freely supplied with water till they go out of bloom, when the quantity should be gradually reduced, but not entirely withheld.

HEATING APPARATUS.—At this season the heating apparatus should be overhauled, but it may be very difficult to obtain workmen to do it, as so many skilled engineers are in Government employ, yet a great deal may be done by growers who are interested in such work. The boilers should be emptied and cleaned of sediment, if nothing else be done, but the pipes should be immediately filled again. Loose joints in the hot water pipes must be made good, all the valves oiled, and the overflow and feed pipes put in good order. The fire bars, flues around the boilers, ashpit doors, &c., should also receive attention, so as to be ready for use when required.



ODONTOGLOSSUM GEORGIUS-REX.



AT the recent Holland House Show a First-class Certificate and a Silver Medal for Culture were awarded to *Odontoglossum Georgius-Rex*, a

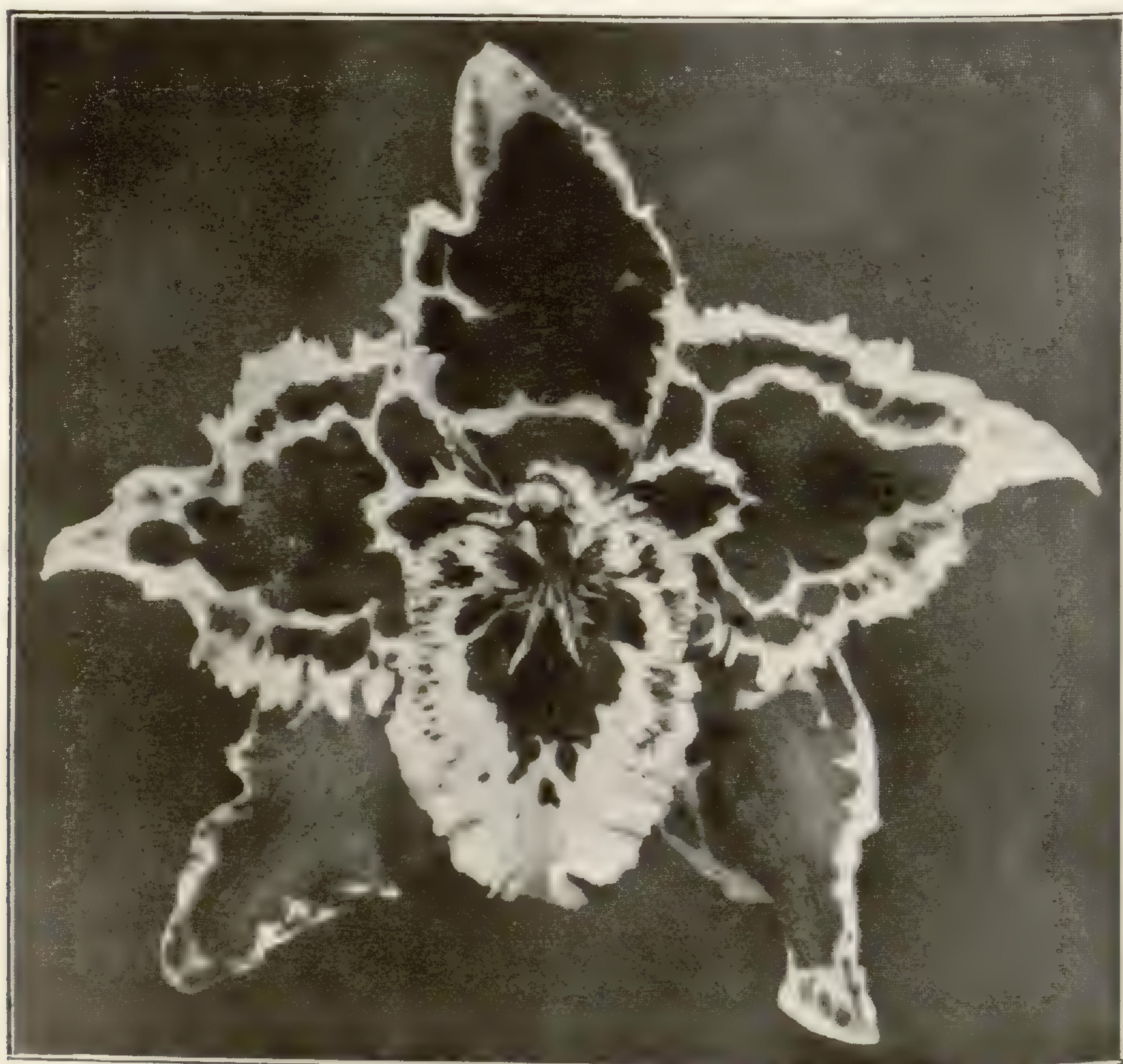


Fig. 31. *ODONTOGLOSSUM GEORGIUS-REX*.

magnificently-grown specimen from the collection of J. Gurney Fowler, Esq., Brackenhurst, Pembury (gr. Mr. J. Davis), bearing a branching panicle with twenty-eight finely-developed flowers. It may be remembered that the hybrid was raised by Messrs. Charlesworth & Co., who exhibited it two

years earlier, when it received an Award of Merit. It was derived from *Odontoglossum Rolfeæ* crossed with another *O. Harryanum* hybrid whose identity is not quite certain, though in all probability *O. crispum* is in some way concerned in the ancestry. Its general character is shown in the annexed figure of a single flower, while the entire plant may be seen by a reduced figure in a recent issue of the *Garden* (July 17th). The blotches are dark claret-purple on a light yellowish ground.

NEOMOOREA IRRORATA.—In a note in your March issue on this distinct and interesting plant you say that “at last the habitat can be recorded.” I have had the plant growing here in Ocaña, with other plants, for some time. I collected it while on an excursion in the region of the river San Alberto, which is one of the small rivers which flow into the Lebrija, in the province of Santander. It grows on the larger trees in the more open parts of the forest, mostly on the trunks, some twenty or thirty feet from the ground, and not on the branches. I have seen plants with ten or fifteen large bulbs and ten or twelve flower spikes. It is by no means a common plant in this region. I have no means of giving you the altitude at which it grows, but it is in the “tierra caliente,” or hot country. *Lycaste gigantea* also grows in the same forests, but at a much lower altitude.

Ocaña. CYRIL ALLEN.

[We thank Mr. Allen for this interesting note, which should afford a clue as to the kind of treatment suitable. We believe there has been an inference that it is terrestrial, but this information perhaps indicates the necessity for more thorough drainage. We believe that it is generally treated as an Intermediate house plant, but proves rather shy in flowering. Nothing approaching the development mentioned by Mr. Allen has yet been seen in Europe.—ED.]



SOCIETIES.



ROYAL HORTICULTURAL.

THE great Summer Show was held in the grounds of Holland House, Kensington, on Tuesday, Wednesday, and Thursday, July 6th, 7th, and 8th, and was highly successful, Orchids and other plants providing a magnificent display, while the brilliant weather of the opening day favoured a large attendance of visitors. The morning of the second day, however, was wet. The Council entertained the Committees and Judges to luncheon, and, after the loyal toast, the President, Lord Grenfell, congratulated the Society on its continued prosperity and on the success of the show, and tendered the thanks of the Council to the Committees and others to whose loyal help this success was largely due. In proposing the

health of M. Philip de Vilmorin, who was present as a guest, the President commended the War Horticultural Relief Fund to the sympathy and support of the Fellows, and M. Vilmorin, in replying, thanked British Horticulturists for their efforts to alleviate the suffering of their fellows in the war area. The health of the President and Council was proposed by Mr. Stuart Low, and was suitably acknowledged.

The Orchids mostly occupied the centre stage of one of the large tents, and made a brilliant display, the plants being for the most part exceedingly well grown and flowered, and the awards consisted of two Gold and four other Medals—one being the Lindley Medal for a splendidly-grown *Odontoglossum*—five Cups, two First-class Certificates, and three Awards of Merit.

Orchid Committee present: Sir Harry J. Veitch (in the Chair), J. O'Brien (hon. sec.), T. Armstrong, J. E. Shill, W. Thompson, Arthur Dye, J. Cypher, W. Bolton, F. Sander, Gurney Wilson, W. H. Hatcher, A. McBean, Stuart H. Low, R. G. Thwaites, W. H. White, Pantia Ralli, Walter Cobb, R. A. Rolfe, J. Wilson Potter, C. J. Lucas, R. Brooman-White, and Clive Cookson.

Sir Jeremiah Colman, Bart., Gatton Park, Reigate (gr. Mr. Collier), staged a magnificent group of Orchids, to which a Gold Medal was awarded. The arrangement was in the form of a high bank, the back consisting of tall *Oncidiums*, *Sobralia Colmaniae*, *Epidendrum Boundii*, *prismatocarpum*, and others, and the middle distance was made up of some good examples of *Læliocattleya Aphrodite*, *Canhamiana*, *Hippolyta*, and others, *Lælia tenebrosa*, several fine forms of *Cattleya Mendelii*, *C. Warscewiczii* King Edward VII., a very richly-coloured form, *C. Mossiæ Wageneri*, many beautiful *Odontoglossums*, white and blotched, the rare *O. tripudians*, a very fine series of *Odontioda Bradshawiæ*, forming masses of scarlet colour, several *O. Papilio*, *O. Schroederi*, having large white flowers with a few orange-cinnamon blotches, the rare *Zygopetalum Rœblingianum*, *Dendrochilum cornutum*, the very rare Australian *Sarcochilus Cecilæ*, with racemes of rosy flowers, a profusely-flowered *Pleurothallis stenopetala*, good examples of *Cochlioda Noetzliana*, *Nanodes Medusæ*, *Physosiphon Loddigesii*, the woolly-flowered *Eria pannea*, a pretty little hybrid from *Diacrium bicornutum* × *Cattleya Louryana*, having white flowers, with rather elongated side lobes and a rosy front lobe, and many other interesting things, the group being effectively set up with moss and maiden-hair fern.

J. Gurney Fowler, Esq., Brackenhurst, Pembury (gr. Mr. Davis), sent a plant of the handsome *Odontioda Cooksoniæ* Fowler's var., having scarlet flowers of excellent shape, with a white apex to the lip, and *Odontoglossum Gorgius-Rex*, a splendidly-grown plant, bearing a panicle of twenty-eight large and richly-coloured flowers. The Lindley Medal for

culture was awarded to this fine *Odontoglossum*. These plants occupied a small stage to the right of the entrance, and were set up with maiden-hair fern.

Elizabeth, Lady Lawrence, Burford (Orchid grower Mr. Swindon) sent cut spikes of *Cypripedium Stonei* and the remarkable var. *platytænium*, the latter a plant that is represented in very few collections, and very rarely exhibited (see page 250).

Pantia Ralli, Esq., Ashted Park, Epsom (gr. Mr. Farnes), showed a hybrid *Cattleya* called *C. Eros*, probably a hybrid of *C. Mossiæ*, and somewhat resembling a light-coloured *C. Empress-Frederick*, one of the pseudobulbs bearing two leaves. Its identity is uncertain, but it is distinct from the original *C. Eros* (*Mossiæ* × *Walkeriana*).

Messrs. Mansell & Hatcher, Rawdon, East Yorks., staged a magnificent group, which was tastefully arranged, and secured the award of a Gold Medal. The back and the two ends were well elevated, the centre consisting of the gracefully arching spikes of about thirty fine examples of *Phalænopsis amabilis*, with other suitable things, while the ends were made up largely of *Cattleyas* and *Læliocattleyas*. The front and centre were low, and were filled with a number of smaller plants and choice hybrids, a few of which were elevated on moss-covered stands, giving a very graceful effect. We noted three well-flowered examples of the graceful *Dendrochilum filiforme*, several of the brilliant *Cochlioda Noetzliana*, *Promenæ xanthina*, two good *Paphinia cristata*, *Lycaste cruenta*, *Oncidium Harrisonianum* and *Kramerianum*, the graceful *Cœlogyne Dayana*, *Vanda teres*, *Anguloa Cliftonii*, *Cattleya Iris*, *Aërides odoratum*, and other good things. Among a number of interesting hybrids were *Odontoglossum Evelyn* (*spectabile* × *Phœbe*), with handsomely blotched somewhat acuminate segments, six remarkably diverse forms of *Odontioda Sunbeam* (*Oda. Vuylstekeæ* × *Odm. Lambeauianum*), a good *O. ornata*, *O. Clarissa* (*Oda. Bradshawiæ* × *Odm. illustrissimum*), having lilac flowers densely dotted with rose-purple, and the crest yellow. *O. Edith-Hodgson* (*Odm. tigrinum* × *Oda. Bradshawiæ*), having acuminate segments heavily marked with red-brown on a yellowish ground, *O. Prince of Wales* (*Odm. Ernestii* × *Oda. Charlesworthii*), bearing three light rose-purple flowers of excellent shape, and other good things.

Messrs. Sander & Sons, St. Albans, received a Silver-gilt Cup for a large and handsome group, which was well banked up at the centre and ends with *Læliocattleyas* and other good things. We noted many fine forms of *L.-c.* *Canhamiana* and *Aphrodite*, *L.-c. gloriosa*, *brugensis* and *Isabel-Sander*, *Odontoglossum Uroskinneri album* and many hybrids, *Odontioda Vuylstekeæ* and *O. Doris*, *Anguloa Ruckeri*, several fine *A. Cliftonii*, and a natural hybrid between the two, a fine *Stanhopea tigrina*,

Sarcopodium cymbidioides, *Cirrhopetalum robustum*, *Diacrium bicornutum*, *Maxillaria marginata*, *Sanderiana* and *venusta*, the striking *Paphinia cristata*, the handsome *Miltonia Sanderæ*, *Aërides Houlettianum Sanderæ*, with light yellow flowers, some good *Cattleyas* and *Brassocattleyas*, *Liparis plantaginea*, with rather large dark green flowers, and other interesting things.

Messrs. Flory & Black, Orchid Nursery, Slough, received a Large Silver Cup for a very fine group, the ends and centre consisting largely of well-grown *Læliocattleya Aphrodite* and *Canhamiana*, and the intervening spaces containing clusters of the handsome *Disa Luna*, with examples of *D. Blackii* and *grandiflora*. We noted also *Odontoglossum apterum candidulum*, *O. eximium xanthotes* and others, *Miltonia Hyeana*, *Cattleya Mossiæ Wageri*, *Oncidium leucochilum* and *pulvinatum*, *Odontioda Charlesworthii*, *Brassia maculata*, *Anguloa virginalis*, and other good things.

Messrs. Charlesworth & Co., Haywards Heath, received a Silver Cup for a group of well-grown specimens, arranged in a setting of maiden-hair fern. It included three well-flowered examples of the handsome *Miltonia Charlesworthii*, two fine examples of *Angræcum Eichlerianum*, *Cattleya Warscewiczii marmorata*, having the flowers striped with purple, well-flowered examples of *Epidendrum vitellinum* and *prismatocarpum*, a pure scarlet form of *Odontioda Goodsoniæ* with a deep yellow crest, a light form of *O. keighleyensis* bearing three large panicles, *O. Chantecleer*, a beautiful example of *Paphinia cristata* with four racemes, two of these bearing four flowers each, *O. Brewii*, *O. Eurydice roseum* with two fine racemes, *Odontioda Lairesseæ*, a fine form of *Læliocattleya Martinetii*, *Oncidium crispum*, some good *Cochlioda Noetzeliana*, a fine plant of *Oncidioida Cybele*, *Odontoglossum crispum Madonna*, and others, with several well-bloomed examples of *Masdevallia muscosa* in front.

Messrs. Armstrong & Brown, Tunbridge Wells, received a Standard Cup for a very fine group, in which the forms of *Cattleya Warscewiczii* were numerous and beautiful, the var. *Virgin Queen* having white sepals and petals, and the front lobe of the lip purple margined with white. We noted also *C. Mossiæ Wageri*, *C. Gaskelliana alba*, a few good *Læliocattleyas*, *Maxillaria luteoalba* with ten flowers, *Lycaste Deppei* and *cruenta*, *Anguloa Ruckeri*, *Odontoglossum Uroskinneri*, *Thompsonianum*, several good *O. crispum*, and a few good blotched seedlings, *Cypripedium Phœbe*, *Chamberlainianum*, *Lawrenceanum Hyeana*, and *Daisy Barclay*, *Oncidium phymatochilum*, *Cochlioda Noetzeliana*, *Odontioda Cupid*, and other good things.

Messrs. Stuart Low & Co., Jarvisbrook, Sussex, received a Standard Cup for a very fine group, including some particularly good forms of *Læliocattleya Aphrodite*, masses of *Renanthera Imschootiana*, *Cattleya*

Whitei, *C. Mossiæ* *Wagneri*, and some good *C. Warscewiczii*, a good example of *Vanda cœrulea*, *Lælia tenebrosa* Walton Grange var., *Phalænopsis amabilis*, *Oncidium crispum*, a fine example of *Cleisostoma secundum* with numerous arching racemes of purple flowers, *Aërides virens*, good examples of *Promenæa xanthina*, *Oncidium pubes*, a well-flowered *Brassavola tuberculata*, *Bulbophyllum Lobbii* and *barbigerum*, *Sophracatlælia Laconia* (S.-l. *heatonensis* × L.-c. *callistoglossa*), a very pretty hybrid with deep rose flowers, *Odontioda Charlesworthii*, three good *Cypripedium caudatum*, and a number of good *Odontoglossums*.

Mr. H. Dixon, Spencer Park Nursery, Wandsworth, received a Silver Flora Medal for a good group of showy things, including two fine *Læliocattleya bletchleyensis*, the var. *Emperor* bearing a spike of five very richly-coloured flowers, *Lælia tenebrosa*, two good examples of *Cattleya Mossiæ* *Wagneri*, *Odontoglossum eximium*, *illustrissimum*, *crispum*, and *O. armainvillierense xanthotes*, *Odontioda Thwaitesiæ*, *Charlesworthii*, and a few others.

Messrs. J. & A. McBean, Cooksbridge, received a Silver Flora Medal for a brilliant group, including good examples of *Oncidium McBeanianum*, *Dendrobium Dearei* and *Sanderæ*, *Cœlogyne pandurata*, *Miltonia vexillaria chelseiensis* with three spikes, *Odontoglossum Pescatorei* with a fine panicle of flowers, *O. armainvillierense xanthotes*, *O. hastilabium*, and *O. Hyeantum*, *Masdevallia Schlimii*, *Læliocattleya Emmeline* (*L. anceps* *Schrœderæ* × *C. Whitei*), and others, while brilliant colour was supplied by a number of *Odontioda Bradshawiæ*, *Charlesworthii*, *Lutetia*, *Brewii*, and five good examples of *Cochlioda Noetzliana*.

Mr. C. F. Waters, Deanland Nursery, Balcombe, received a Silver Banksian Medal for a bright little group, including examples of *Vanda teres*, *Cattleya citrina*, *Læliocattleya Aphrodite* and *Canhamiana*, *Renanthera Imschootiana*, *Masdevallia Houtteana*, *Miltonia vexillaria*, *Odontoglossum Pescatorei* and *crispum*, *Odontioda Charlesworthii*, *Dendrobium Thwaitesiæ*, and a form of *Eulophia nuda* having the flowers entirely greenish.

FIRST-CLASS CERTIFICATES.

CATTLEYA WARSCEWICZII VAR. *MRS. E. ASHWORTH*.—A very beautiful form, bearing a spike of four large blush pink flowers, with a pale yellow throat to the lip.—Exhibited by Messrs. Charlesworth & Co.

ODONTOGLOSSUM GEORGIUS-REX.—This magnificent hybrid, derived from *O. Rolfeæ* and another *O. Harryanum* hybrid whose identity is uncertain, has now developed into a remarkably strong plant, bearing a panicle of twenty-eight flowers, heavily blotched with dark claret-purple on a light yellowish ground. Exhibited by J. Gurney Fowler, Esq. The history of the plant and a figure are given on page 240.

AWARDS OF MERIT.

CATTLEYA MENDELII VAR. *MRS. SMEE*.—A very beautiful variety, bearing two large blush-pink flowers, with the front lobe of the lip deep carmine, and the throat yellow. Exhibited by Sir Jeremiah Colman, Bart.

CATTLEYA PAULA (*Clarkiæ* × *Dowiana aurea*).—A handsome hybrid, bearing a spike of two flowers, the sepals and petals of a deep rose-purple shade, slightly flushed with yellow, and the limb of the lip deep maroon purple, with a number of reddish lines in the deep yellow throat. Exhibited by Messrs. J. & A. McBean.

LÆLIOCATTLEYA FASCINATOR-MOSSIÆ VAR. *MOONLIGHT* (L.-c. *Fascinator* × *C. Mossiæ Wageneri*).—A charming albino, the flowers being entirely purely silvery white, with a tinge of pale purple at the extreme base of the sepals behind. Exhibited by Messrs. Charlesworth & Co.

The meeting following the Holland House Show was rather small so far as Orchids were concerned, but three medals were awarded to very interesting groups, and an Award of Merit was given to a most remarkable *Bulbophyllum* from Messrs. Sander & Sons, which is nearly allied to *B. Fletcherianum*, and probably from the same country.

Orchid Committee present: Sir Harry J. Veitch (in the Chair), J. O'Brien (hon. sec.), Gurney Wilson, W. Bolton, W. H. White, Arthur Dye, W. H. Hatcher, C. H. Curtis, J. Charlesworth, Pantia Ralli, J. Wilson Potter, R. A. Rolfe, S. W. Flory, R. Brooman White, and J. Gurney Fowler.

J. Gurney Fowler, Esq., Brackenhurst, Pembury (gr. Mr. Davis), sent a good plant of *Cymbidium pendulum* bearing two racemes. It is an interesting old garden plant which was introduced upwards of a century ago, and its history is given on page 252.

Messrs. Stuart Low & Co., Jarvisbrook, Sussex, staged a fine group, including three showy examples of *Cattleya Warscewiczii*, *C. Mossiæ Wageneri*, *C. Gaskelliana* Fairy Queen, a pretty blush white form, *C. O'Brieniana* alba, two good *Oncidium macranthum*, *O. Kramerianum*, *Aërides odoratum* album, *Rhynchostylus retusa* with three racemes, a richly-coloured *Vanda cœrulea*, *Læliocattleya rubens* and *Aphrodite*, *Miltonia vexilaria* Lambeauiana, the handsome *Dendrobium regium* and a well-flowered *D. clavatum*, *Epidendrum vitellinum*, a spike of the rare *Trichoglottis Dawsoniana*, a plant of *Cypripedium caudatum*, *Odontioda Vuylstekeæ* and *O. Charlesworthii*, and a very distinct *Odontioda* from *Odontoglossum Rolfeæ* × *Odontioda Charlesworthii*, having rosy purple flowers, the sepals rather darker, and the lip with a whitish margin and a yellow crest (Silver Flora Medal).

Messrs. Sander & Sons, St. Albans, also staged a fine group, high up

in the centre of which was a fine specimen of *Cœlogyne Dayana* bearing nine pendulous racemes, while on either side and in front were examples of *C. Mooreana*, the tall *Xylobium elatum*, five well-grown *Cattleya Warscewiczii*, *C. Gaskelliana* Bridesmaid, a charming white form, two *Anguloa Cliftonii*, *Epidendrum vitellinum* and *radiatum*, *Sarcanthus pallidus*, *Cypripedium Boltonii*, *Olga Bradshawe* and *Wiertzianum*, a fine *Odontoglossum Thompsonianum*, *Phoebe citrosmum* and a fine *O. Williamsianum*, *Bulbophyllum patens* and *densiflorum*, *Brassavola fragrans*, *Liparis plantaginea*, *Dendrobium regium* and *bicameratum*, *Masdevallia calura*, *Polystachya laxiflora*, a good *Odontioda Bradshawiæ*, and a pretty hybrid from *Brassavola nodosa* × *Cattleya Enid*, having large rose-purple *Brassavola*-like flowers (Silver Flora Medal).

Messrs. J. & A. McBean, Cooksbridge, staged a choice group, including good examples of *Odontoglossum armainvillierense*, *O. Elaine*, combining well the characters of *O. cirrhosum* and *Harryanum*, and having prettily undulate petals, *Læliocattleya Beatrice* (L.-c. *callistoglossa* × *C. Schroederæ*), and L.-c. *Harri-anceps*, the latter having lilac-purple sepals, and the front lobe of the lip reflexed and purple with a yellow throat, *Odontioda Bradshawiæ*, *Thwaitesii*, *Lambeauiana*, and a very fine *O. Diana*, four good forms of *Cattleya Rothschildiana*, and *C. Warscewiczii* *Frau Melanie Beyrodt* (Silver Flora Medal).

Messrs. E. H. Davidson & Co., Orchid Dene, Twyford, sent the rare *Cattleya superba alba* with blush white flowers, and a fine example of *Odontoglossum Ceres* bearing a spike of five flowers.

Messrs. Flory & Black, Orchid Nursery, Slough, sent some choice things, including *Cattleya Orduna* (*Mendelii* × *Carmen*), most like the former, and having blush pink sepals and petals, the front lobe of the lip crimson-purple, and the throat yellow with reddish lines, *Læliocattleya Carlina* (*callistoglossa* × *Fascinator*), with rosy-purple sepals and petals, the front lobe of the lip being crimson-purple, with some reddish lines in the deep yellow throat, two fine example of *Odontioda Thwaitesii*, and *Odontoglossum Rolfeæ* × *Harryanum*, being a spike of eight flowers, fairly intermediate in shape, and having white petals and lip, spotted with purple, and the sepals with larger blotches on a somewhat dusky ground.

AWARD OF MERIT.

BULBOPHYLLUM BALFOURIANUM.—A very remarkable species, closely resembling *B. Fletcherianum* in habit and in the peculiar glaucous leaves, but the flowers quite different in shape, the dorsal sepal being ovate, acute, and about $1\frac{1}{2}$ inches long, the lateral sepals longer and somewhat falcate at the apex, and the petals shorter and distinctly crenulate. The plant bore a very short inflorescence of three large flowers, closely dotted with purple-red on a light yellow ground. Exhibited by Messrs. Sander & Sons

MANCHESTER AND NORTH OF ENGLAND ORCHID.

At the meeting held at the Coal Exchange, Manchester, on July 8th, the members of Committee present were: Rev. J. Crombleholme (in the Chair), Messrs. R. Ashworth, J. Cypher, P. Foster, A. Hanmer, Dr. Hartley, J. Lupton, D. McLeod, W. Shackleton, S. Swift, H. Thorp, Z. A. Ward, and H. Arthur (Secretary).

R. Ashworth, Esq., Newchurch (gr. Mr. W. Gilden), staged a group, to which a Large Silver Medal was awarded. It included *Odontoglossum crispum* var. George, *O. Bronze Dragon*, *O. Victor Hye de Crom*, and *O. Pescatorei xanthotes*, *Miltonia Sunbeam*, *Fairy Queen* and *Queen Alexandra*, *Cypripedium gigas* *Corndean Hall*, *niveum*, *Venus*, *callosum* *Sanderæ*, *St. Alban*, and *Chamberlainianum*, *Læliocattleya Martinetii* and *Canhamiana*, *Anguloa Cliftonii*, *Bollea Lalindei*, and other interesting things.

Col. J. Rutherford, M.P., Blackburn (gr. Mr. Lupton), was also awarded a Large Silver Medal for a group, composed of *Cattleya Mossiæ Wageri*, *C. Gaskelliana alba*, and *Brassocattleya Maronii*, with a fine batch of *Miltonias* of the *vexillaria* section, the most noticeable being *Jules Hye* and *Hyeana*, with others.

O. O. Wrigley, Esq., Bury (gr. Mr. E. Rogers), staged fine examples of *Phalænopsis amabilis Rimestadiana*, *Angulosa Clowesii*, *Disa grandiflora*, and several interesting hybrids.

J. J. Bolton, Esq., Pendleton (gr. Mr. J. Law), sent a fine plant of *Oncidium crispum* *Heathfield* var., a Cultural Certificate being awarded to the gardener.

A. J. Oakshott, Esq., Bidston (gr. Mr. Findlow), staged *Odontoglossum Duchess of Teck*.

Messrs. Cypher & Sons, Cheltenham, were awarded a Silver Medal for a mixed group, including *Cattleya Olivia* and *gigas Sanderiana*, *Epidendrum vitellinum*, *Oncidium divaricatum*, *pulchellum*, *Vanda coerulea*, *Bulbophyllum Lobbii*, *Macdevallia bella*, *Dendrochilum filiforme* and *latifolium*, *Brassia verrucosa*, *Stanhopea tigrina*, and others.

Messrs. A. J. Keeling & Sons, Bradford, staged *Oncidium Gardneri*, *Miltonia vexillaria* *Fairy Queen*, *Masdevallia muscosa*, *Cattleya F. W. Wigan*, *Cypripedium Emperor of India*, and *Palumbina candida*.

AWARDS OF MERIT.

Oncidium crispum *Heathfield* var., from J. J. Bolton, Esq.

Odontoglossum Duchess of Teck, from A. J. Oakshott, Esq.

CULTURAL CERTIFICATE.

To Mr. Jas. Law, gr. to J. J. Bolton, Esq., for a fine example of *Oncidium crispum*. a Bronze Medal being also awarded in recognition of the excellent culture.

 MILTONIA CHARLESWORTHII.

THREE finely-grown examples of the handsome *Miltonia Charlesworthii*; were staged by Messrs. Charlesworth & Co. at the recent Holland House Show, and it was interesting to see how completely the deep claret-



Fig. 33. MILTONIA CHARLESWORTHII.

purple, butterfly-like blotch of the pollen parent, *Miltonia vexillaria* memoria G. D. Owen, is repeated in the hybrid. Those who may not have seen the plant alive may be able to trace the resemblance in the annexed

figure. The resemblance to a purple butterfly with scalloped wings is so great that a person who had never seen a *Miltonia* might almost be deceived at a first glance, and the fact reminds us of the numerous resemblances to insects which have been observed among Orchids, and which have, in a number of cases, served as the basis of popular names. In some cases the resemblances are much too obvious to be overlooked, and one might almost furnish a museum of curiosities out of such resemblances. Still more interesting would it be to trace the reason for these resemblances, for they cannot all be meaningless, and there is a vast field open to the patient investigator who would seek out the ultimate cause. In the case of the *Miltonia* it is difficult to imagine any use that could be served by adopting a resemblance to a purple butterfly, for it is not a specific character, but, whatever the significance, it has been handed on to the hybrid offspring, and in each case it adds greatly to the beauty of the flower.

	CYPRIPEDIUM STONEI PLATYTÆNIUM.	
---	--	---

THIS remarkable variety is a very rare visitor at our horticultural exhibitions, and it was interesting to see a cut spike of it, from the collection of Elizabeth, Lady Lawrence, Burford, at the Holland House Show, together with one of the type. It originally appeared as a single plant in the collection of Mr. John Day, at Tottenham, as long ago as 1867, and was described by Reichenbach (*Gard. Chron.*, 1867, p. 1118, with fig.), the author calling it a wonderful variety, bearing petals of the shape of *C. Lowii*, but hanging down and beautifully spotted. And he added the enigmatic remark: "If someone should suggest it being a mule between the old *Lowii* and the new *Stonei* we should beg him to leave the question open, since we have no means whatever of elucidating it." We know of but a single plant in Europe, in the possession of J. Day, Esq., High Cross, Tottenham. Mr. Day then made a painting of a single flower (*Orch. Draw.*, xii. t. 39), but in May, 1878, he painted a fine three-flowered spike (*l.c.*, xxiii. t. 68), on the latter occasion recording its history very fully, which it may be interesting to summarise. He remarked:—

"The plant has flowered with me once more—it bloomed the first time in June, 1867, and was exhibited by me at the Royal Horticultural Society's first International Show. The only plant that was imported came from Borneo with a large lot of *Cypripedium Stonei* received by Messrs. Hugh Low & Co. in November, 1863. I divided the plant after blooming, and sold two plants at Stevens', both of which were bought by Messrs. Veitch & Sons at different times, and one I sold them in March of this year. I have now three plants remaining, all being divisions of the original. Messrs.

Veitch flowered it once, so this is only the third time of its flowering in Europe. I cannot see any approach to *C. Lowii* in any particular. It is a true *Stonei* in everything but breadth of petals, but in that it differs from *C. Lowii* altogether. I cannot therefore agree with Professor Reichenbach in thinking it a hybrid between these two species. It is a very striking and handsome variety, and it is the greatest piece of luck that I ever had in all my long career of Orchid-growing—for, considering the vast number of imported Orchids of all kinds that I have bought and imported, I have not been fortunate in obtaining new species or varieties."

In October, 1881, he added a memorandum to this drawing: "I have now sold all stock of this, with the rest of my collection; one plant sold to Veitch in March, 1878, for £105, one to Veitch in 1881 for 75 guineas, and the three remaining ones at my sale in 1881 for £147, £136 10s., and £126. Sir Trevor Lawrence bought the higher-priced one, and Baron Schröder the other two."

The beauty of the variety may be seen by a fine illustration of one of Mr. Day's plants, bearing an inflorescence of four flowers, which appeared in Warner's *Select Orchidaceous Plants* (iii. t. 14), and we have seen a similar inflorescence in the collection of Sir Trevor Lawrence. It is a plant of remarkably slow growth, and we believe is still only represented in the collections at Burford and at The Dell, Englefield Green. In the summer of 1887 a plant in the latter unexpectedly proved that it is only a permanent mutation of the species, for it produced a flower bearing one of its own proper petals and one of the normal *C. Stonei*. This flower is preserved at Kew. The plant received a First-class Certificate from the R.H.S. in June, 1867, and again in May, 1895, the exhibitors being Mr. Day and Sir Trevor Lawrence respectively.—R.A.R.



DISA GRANDIFLORA AUREA.—A two-flowered spike of the brilliant scarlet *Disa grandiflora* is sent from the collection of O. O. Wrigley, Esq., Bridge Hall, Bury, by Mr. Rogers, together with a flower of what is called *D. grandiflora aurea*. Mr. Rogers remarks: "We consider it very pretty and quite distinct from any other we have seen. The tubers were bought last year in Protheroe's Rooms (newly imported) under the above name." The variety apparently obtains its name from a decided suffusion of yellow in the ground colour of the dorsal sepal, which in the typical form inclines to white, for the rest of the flower is about normal in colour, and the lateral sepals are of a brilliant shade of pure orange-scarlet. We hardly think it can be the yellow form of the species that was reported some time ago, but this note is written far away from all books of reference, where the flower in question has followed us, so that for the moment we must content ourselves with briefly recording its character.—R.A.R.



CYMBIDIUM PENDULUM.



THIS interesting old plant has been rather pushed into the background by showy species of later introduction, and it was interesting to see a fine example at the R.H.S. meeting held on July 20th. It was from the collection of J. Gurney Fowler, Esq., Brackenhurst, Pembury, and bore the name of *Cymbidium aloifolium*, but as it is not the original species of that name it may be interesting to give its history.

The species was originally described and figured in 1795, by Roxburgh, under the name of *Epidendrum pendulum* (*Pl. Coast Coromandel*, i. p. 35, t. 44), with the record that it grew on trees on the Circar Mountains, and differed but little from *Epidendrum aloifolium*, L., a plant based on an old figure of Rheede (*Hort. Malab.*, xii. p. 17, t. 8). When some four years later Swartz established the genus *Cymbidium* these two plants became *Cymbidium pendulum* and *C. aloifolium* respectively. So far no difficulty arises. In 1797, however, a plant had been figured in the *Botanical Magazine* (t. 387) under the name of *Epidendrum aloides* (a misprint for *aloifolium*, as the text shows), which was not the plant of Linnæus and of Rheede, but that of Roxburgh, and thus confusion began. The history is thus given by Curtis: "A few years since, my friend, Mr. Vere, of Kensington, received this plant from India, by the kindness of his friend, J. Devaynes, Esq. Placed in a pot of earth and plunged in the tan pit of the stove, it grew, increased, and now flourishes, but has not blown. With Messrs. Grimwood & Wykes, Nurserymen, Kensington, the plant has flowered this summer; instead of plunging it in the tan, they set it on the flue of the stove, and to this variation in its treatment its flowering is, perhaps, to be attributed."

A year later Jacquin figured the same plant as *Epidendrum aloifolium* (*Hort. Schœnbr.*, iii. p. 69, t. 383), giving the Linnæan synonymy, and a few years later Loddiges figured it as *Cymbidium aloifolium* (*Bot. Cab.*, t. 967), remarking: "We received this plant about the year 1790 from China, where several varieties of it are cultivated."

Blume evidently overlooked the earlier *Cymbidium pendulum*, for in 1825 he described a second species under the same name (*Bijdr.*, p. 379), this being a plant collected on Mt. Salak, Java, respecting which Lindley expressed a doubt (*Gen. & Sp. Orch.*, p. 165) whether it was the plant of Roxburgh. But Lindley himself afterwards introduced a further complication when he figured under the name of *C. pendulum*, Swartz, a plant which flowered in the collection of the Horticultural Society in 1838, which had been sent to Dean Herbert by Dr. Wallich (*Bot. Reg.*, xxvi. t. 25). This was his own *C. Finlaysonianum* (*Gen. & Sp. Orch.*, p. 164), based on

a plant collected in the Malay Peninsula (at first recorded as Siam) by Finlayson, and identical with the Javan plant, which latter Lindley did not even mention. In fact he gave the history and synonymy of Roxburgh's Indian plant, so that the confusion now became complete. The mistake is curious, for Lindley gave all the three species correctly in his *Genera and Species of Orchidaceous Plants*. Lindley's *C. pendulum* var. *brevilabre* (*Bot. Reg.*, xxx. t. 24), based on a plant collected at Singapore by Cuming, and flowered by Messrs. Loddiges, and the *C. pendulum* of the *Orchid Album* (x. t. 437), are also *C. Finlaysonianum*, which is a larger-flowered species, and has a wide range in the Malay Peninsula and Archipelago, as far as the Philippines.

The true *C. pendulum*, Swartz, is widely diffused in Northern India, from Nepal to Silhet and Bengal, while *C. aloifolium*, Swartz, is a South Indian plant, having a very acute lip and other differences. It is rare in cultivation. These two, it may be added, are completely confused in the *Flora of British India*. R.A.R.



ORCHIS MACULATA.



THIS is surely the commonest and best-known of our British Orchises, yet its identity is called in question in a long article by Mr. G. C. Druce which has just appeared (*Rep. Bot. Exch. Club*, 1914, pp. 99-106). It is asserted that for some years a wrong conception of *Orchis maculata* has been prevalent in Britain, and that the plant which Linnæus had in view when he established the species was not our familiar plant. From the few words of description of the original *O. maculata*, L., it is inferred that the Linnæan plant is the *O. maculata præcox*, Webster (*Brit. Orch.*, ed. 2, p. 69), a dwarf, mountain-meadow, early-flowering form, which is also the *O. ericetorum*, Linton (*Fl. Bournem.*, p. 208), to which it is further stated belong the majority of the plants called *O. maculata*, L., on the Continent. He then runs through the different Floras, Continental and British, attempting to show that some refer to one, some to the other (so-called) species, while others include both. Yet he admits having seen an almost unbroken change of forms between the two "when a peaty field adjoins a basic woodland," but adds, "whether these intermediates are hybrids between two distinct super-species, or whether the variations are due to the soil conditions, has yet to be ascertained." Finally he re-describes our familiar plant under the name of *O. Fuchsii*, Druce (p. 105).

He then describes a hybrid between the two, as *O. Fuchsii* × *maculata*, adding four others, as follows: *O. Fuchsii* × *prætermissa*, *O. Fuchsii* × *latifolia*, *O. Fuchsii* × *incarnata*, and *O. Fuchsii* × *Habenaria viridis*.

Orchis maculata, in the new sense, is defined as a plant of heathery moorlands, heathy ground, peat bogs, and in damp places on siliceous soils, locally abundant and ascending to 3,000 feet, and occurring from Cornwall northwards to the Shetlands and in Ireland, but absent from large areas in the basic soils of the Midlands and Eastern Counties. Three hybrids of it are enumerated. *O. Fuchsii* × *maculata* we have already mentioned, and the others are *O. maculata* × *prætermissa* (*O. Hallii*), and *O. maculata* × *latifolia*.

He then describes *Orchis Okellyi*, Druce, as a third species of the *maculata* group, found locally on the limestone hills of Co. Clare, Ireland, and on the limestones area of Inchnadamph, Sunderland, Scotland. This is said to have white flowers and unspotted leaves.

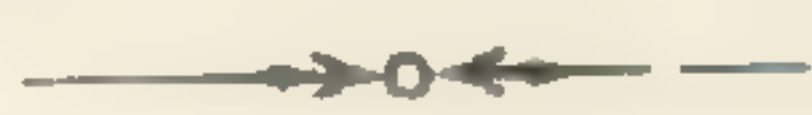
In conclusion Mr. Druce makes the following significant remark: "Perhaps in these three plants we have soil species, (1) *O. maculata*, almost restricted to the acid, silicious areas; (2) *O. Fuchsii*, especially represented on the basic clays and impervious beds of chalk; (3) *O. Okellyi*, a plant strongly calcipete, and restricted to well-drained soils. Whether the intermediate forms which occur are the result of hybridisation, as treated here, or are merely variations await, as has been said, scientific experimental culture."

We regard these as only stational forms of one very common and widely diffused species, which grows under the most diverse conditions, and presents a correspondingly wide range of variation. And we doubt their constancy, for some, at least, of the differences disappear when the plants are grown side by side. And we do not regard the numerous intermediates as hybrids. They are polymorphisms, indicating a state of fluctuating variability, and must not be confounded with the *bona fide* hybrids, which occur where *O. maculata* grows intermixed with allied species. Some of these would be promising subjects for experiment, and we do not think it would take "seven years from the germination of the seed to the flowering stage," for some terrestrial Orchids flower in their second or third season.

R.A.R.

PHALÆNOPSIS AMABILIS RIMESTADIANA.—A magnificent panicle of this fine Orchid has been sent from the collection of O. O. Wrigley, Esq., Bridge Hall, Bury, by Mr. Rogers, who remarks that it received a Cultural Certificate from the Manchester Orchid Society on July 22nd. The inflorescence is very strong, and bears six branches and an aggregate of 39 splendidly-developed flowers. It must have been of considerable length, for the upper branched part, which alone is forwarded, is about two feet long. It is a fine example of good culture. Mr. Rogers adds: "Our *Phalænopsis* has done very well this year, and we exhibited a plant at

Manchester about a month ago bearing a spike of 46 flowers." It is interesting to recall that this, which of late years has generally been imported and grown under the name of *Phalænopsis Rimestadiana*, is the original species of the genus, the plant which Blume described as *Phalænopsis amabilis*, and also the *Epidendrum amabile* of Linnæus. It is sometimes called *Phalænopsis amabilis* var. *Rimestadiana*, but we do not know of a single character by which it can be distinguished from the original plant.—R.A.R.



ANGULOA ROLFEI, Sander.—Messrs. Sander & Sons, St. Albans, have succeeded in obtaining an importation of the handsome *Anguloa Cliftonii*, and out of it has bloomed an example of *A. Ruckeri*, and what is evidently a natural hybrid between the two. All were exhibited at the recent Holland House Show, and Messrs. Sander inform us that they have named the latter *Anguloa Rolfei*. The general shape closely resembles that of *A. Cliftonii*, and the colour as strongly recalls a light form of *A. Ruckeri*, but a glance inside the flowers reveals the most unmistakable intermediate characters. *A. Cliftonii*, as is well known, differs from all the other species in having a short and broadly saccate lip, while the column is strongly bent. Both features are present in the hybrid, but somewhat modified in details. The lip is broader, and considerably longer, somewhat recurved at the sides and apex, and the crest considerably broader, while the column is rather gradually curved than abruptly bent, though quite unlike the straight column of *A. Ruckeri*. The ground colour of the flower is not clear yellow, as in *A. Cliftonii*, but rather whitish yellow, largely obliterated by red-purple markings approaching those of *A. Ruckeri*. It is an interesting addition to the genus.—R.A.R.



ORCHID NOTES AND NEWS.



THREE meetings of the Royal Horticultural Society will be held at the Royal Horticultural Hall, Vincent Square, Westminster, during August, on the 4th, 17th, and 31st, the first meeting being held on Wednesday, instead of Tuesday, so as to avoid the inconvenience of a meeting on the day after Bank Holiday. The Orchid Committee will meet on these dates at the usual hour, 12 o'clock noon.

The dates of the next two meetings of the Manchester & North of England Orchid Society are August 19th and September 2nd, when the Committee will meet at the Coal Exchange, Manchester, at 12 noon, and the exhibits will be open to inspection from 1 to 4 p.m.

Among illustrations of striking novelties given by our horticultural contemporaries we notice in recent issues of the *Gardeners' Chronicle* and the *Gardeners' Magazine* figures of the beautiful albino *Cypripedium Curtisii* Sanderæ, which received a First-class Certificate at the R.H.S. meeting held on June 8th. We note also in the *Garden* an illustration of the magnificent example of *Odontoglossum Georgius-Rex*, which received both a First-class Certificate and a Lindley Medal at the recent Holland House Show.

THE ROLL OF HONOUR.—The sympathy of our readers will be extended to two distinguished Scottish horticulturists whose sons were killed in action in the Dardanelles on June 28th. Captain Peter I. Whitton, of the 7th Scottish Rifles, was the son of Mr. James Whitton, V.M.H., Superintendent of Glasgow Parks. He was in his 38th year, and leaves a widow and child to mourn his loss. Lieut. Isaac Bayley Balfour, who was in his 26th year, was the son of Prof. I. Bayley Balfour, Regius Keeper of the Royal Botanic Garden, Edinburgh. Lieut. Balfour was attached to the 1st K.O.S.B., and was killed when taking part in the successful advance of the British troops.

BULBOPHYLLUM BALFOURIANUM, n. sp.—A remarkable New Guinea species, exhibited by Messrs. Sander & Sons, St. Albans, at the R.H.S. meeting held on July 20th last, and to which an Award of Merit was given. It closely resembles *B. Fletcherianum* in habit, and in its curious glaucous leaves, but has much shorter, broadly ovate sepals, which are about $1\frac{1}{2}$ inches long, and closely dotted all over with lurid red-purple on a light whitish yellow ground. The petals are smaller than the sepals, but similar in colour and with a crenulate undulate margin, while the larger recurved fleshy lip is dark lurid red-purple. The flowers recall a *Stapelia* in several respects.—R.A.R.



ANSWERS TO CORRESPONDENTS.



[Orchids are named and questions answered here as far as possible. Correspondents are requested to give the native country or parentage of plants sent. An ADDRESSED postcard must be sent if a reply by post is desired (abroad, reply postcards should be used). Subjects of special interest will be dealt with in the body of the work].

A.E.B.—*Platanthera bifolia* (*Habenaria bifolia* of the British Floras.), a rather small-flowered form.

S.L. & Co.—*Epidendrum nemorale*, Lindl., *Polystachya cultrata*, Lindl., *Bulbophyllum densiflorum*, Rolfe, and *Eria* species not yet identified. Thanks for flowers, on which a report is deferred.

C.A.—Many thanks. We will report later. Through absence we are unable to look the matter up. Several other correspondents will much oblige by excusing an immediate reply.



The Orchid Review

VOL. XXIII.

SEPTEMBER, 1915.

No. 273.



OUR NOTE BOOK

LAST month, in speaking of an Orchid now believed to be extinct in Britain (p. 226), we alluded to a press cutting that had reached us, but that was not available at the moment. Here it is:—

RARE ORCHID IN KENT.

Not long ago it was announced that the “Botanical Fugitive” had been found in Northern France, and this week a very fine specimen has been discovered in East Kent, on land adjoining Lord Kitchener’s estate near Canterbury. The remarkable double appearance of this Orchid, which at one time was believed to be entirely extinct, is creating great interest in botanical circles.

We missed that announcement, but have little doubt that it refers to the Lizard Orchid, *Orchis hircina*, which, by the way, is common in certain Continental localities, and not so rare in south-east England as is sometimes supposed, as a recent discussion in the *Gardeners’ Chronicle* shows. Mr. F. Brock records (p. 77) that a fine specimen of the Lizard Orchid was found growing in a chalky pasture near the gardens at Goodwood on June 30th, and remarked that he had not found a previous record for Sussex. The note elicited three replies (pp. 108, 122), in which the British records are dealt with very fully. It appears that there are three or four earlier records for Sussex, and something like twenty for Kent, while the plant has also been found in Surrey, East Suffolk, Hampshire, and Wilts. It appears to be increasing in Kent, and is said to occur every year in a locality where it is preserved. It is said to have been known in Kent ever since 1641, and until 1858 was fairly well known, but for the next forty years it was feared that it was extinct in this country, when, in 1898, to everyone’s delight, a specimen was discovered on the Wye Downs. Since then the numbers appear to have been increasing, and let us hope will continue to do so.

An article in *Nature*, entitled "Evolution the other way about," has just caught our eye. It is a review of a book entitled *Histoire de l'Involution Naturelle*, by Dr. E. Marconi, who apparently views the current ideas about Evolution from an inverted standpoint. "The mistake the evolutionists have made in contemplating the stream of life," he asserts, is not a little one; they have actually mistaken the direction of the current." Our first idea was that the whole thing might be an elaborate joke, but we are assured that "the author is obviously sincere and in earnest." The reviewer remarks that when he read the words "involution naturelle" on the title page he hoped that some light would be cast on Prof. Bateson's hard saying: "We may as well see whether we are limited to the old view that evolutionary progress is from the simple to the complex, and whether after all it is conceivable that the process was the other way about." The idea now appears to have been considerably elaborated, but the results are just as disappointing as might have been expected. It may be summed up in a phrase. We are told that "from an original perfect manifestation of life man has fallen, and the ape and the tiger, the mole and the bat are his descendants."

Whether the author got down to Orchids is not stated, but his views on their descent would certainly be interesting, for we have recently seen that they are separated from unicellular plants by an enormous interval. It never occurred to us, however, to view the matter from the other end, and it remains for Dr. Marconi to tell us what the first Orchid was like, and how it got down to *Neuwiedia*—in which three anthers are normally developed—and beyond it, for the matter obviously does not end there.

The reviewer reminds us that the arch-heresy has been suggested before, and describes it as an extraordinary topsy-turvy interpretation of the world, which recalls a character in a certain novel who could only move about on his head. We remember the circumstance to which allusion is made, and our own conclusions thereon (*O.R.*, xxii. p. 261). But is it not, after all, an over-elaborated joke?

A correspondent writes to complain of the number of hybrids of unrecorded or erroneously recorded parentage that appear in the Press; in one case cited it is alleged that both parentage and raiser are wrong. We have endeavoured to obtain the information for any necessary correction, but hitherto without result, so that the matter had better wait for the present. The difficulty is how to remedy the evil. The importance of keeping full records has been urged over and over again, and we can only repeat that neglect of it is creating all the difficulties.

 CALENDAR OF OPERATIONS FOR SEPTEMBER.

By W. H. WHITE, for many years Orchid Grower to the
late Sir Trevor Lawrence, Bart., K.C.V.O.

IT is, of course, impossible to forecast what the weather is likely to be during September, but should it continue damp and unsettled, as it has been during the greater part of August, the management of Orchids should be modified as regards atmospheric moisture, it being a mistake to maintain the same standard as in warm dry weather. And more especially should this be the case in the Cattleya, Intermediate, and Cool houses. As regards the warmer division, a certain amount of moisture should be maintained, in order to counteract the drying effects of artificial heat necessary in keeping up a proper temperature. But even here, especially in low-lying districts, damping down should not be too frequently performed. Until there is need of more artificial heat, the East Indian, Cattleya, and Mexican divisions may be damped down to a moderate extent morning and evening, while the Intermediate and Odontoglossum houses will have the requirements of the plants met by one thorough damping down in the morning in dull weather, merely sprinkling the paths again lightly in the afternoon if the day has been sunny. It is not good practice to keep on damping down and syringing each time the air in the houses gets in the least degree dry, especially in the autumn, when a great number of the plants are finishing up, or have completed their growth for the season. To enable the new growths and new pseudobulbs to mature, and to prevent or check the development of spot, to which nearly all Orchids are liable, each division should be allowed to get comparatively dry for a few hours during the middle of the day.

It is also very important, at this season, that plenty of sunshine should reach such plants as the deciduous *Calanthes*, *Dendrobiums* that have completed their growth, *Thunias*, *Cattleyas* and *Lælias*, terete-leaved *Vandas*, *Catasetums*, *Cycnoches*, *Mormodes*, *Pleiones*, *Schomburgkias*, &c., also those plants which occupy the Mexican division, and that the house or division in which these plants are should be well ventilated, as much fresh air as possible being admitted to every part whenever it can be done without causing any great fluctuation in the temperatures. In the absence of sunshine the plants do not dry up so quickly as the grower would like, and a good deal of judgment is required in affording water, so that the operator will have to be guided by the state of each plant, whether in active growth, at rest, or approaching the flowering stage.

It will also be necessary to gradually expose the collection, as a whole, to more sunlight, and to reduce the amount of shading. Discrimination

must be used, especially where a varied collection is grown, some species being liable to considerable injury if exposed to strong sunlight, and amongst those that are thus readily affected are *Phalænopsis*, *Angræcum*, *Arachnanthe Lowii*, *Phaius simulans*, evergreen *Calanthes*, *Vandas* of the tricolor and *suavis* section, *Bulbophyllums*, *Cirrhopetalums*, *Cypripediums*, *Bolleas*, *Pescatoreas*, *Eulophiella Elizabethæ* and *Peetersiana*, *Cymbidium*s, *Lycastes*, *Miltonias*, and many of the cooler-growing *Oncidium*s, *Masdevallias*, and *Odontoglossums*. It is most difficult, in fact almost impossible, to give precise directions as to what the grower should do, or not do, in every particular, therefore a great deal must be left to one's own judgment. But there is one important matter which should not be overlooked, namely, that when the blinds or shadings are down during the middle hours of the day, it is necessary to guard against over-ventilation or draughts, particularly in the growing houses, so as to minimise the risk of fluctuation in the temperatures through cold winds.

CALANTHES.—The new pseudobulbs of the deciduous *Calanthes* are now well advanced, and in order to obtain strong flower spikes, and to secure clear bright-coloured flowers, the plants should be afforded plenty of room, so that each may receive its due share of sunlight. To this end it is advisable to elevate them well up to the roof glass, and to shade them no more than is absolutely necessary to prevent the sun's rays from damaging the foliage or pseudobulbs. During the middle hours of the day, when the sun is bright, only a very thin shade is needed, but if exposed to the sunshine early in the morning, and again in the afternoon, the bulbs will finish up strongly. In the extra light the plants will dry more quickly, and will require plenty of water at the root, and an alternate watering with liquid manure water will be beneficial. Plants of the *C. Regnieri* section, that bloom in the spring, are only about half-way through their growing season, and should therefore be treated the same as the others were when in full growth. Plants of the evergreen section, which includes *C. veratrifolia*, *Masuca*, *Dominii*, &c., are also making their growth, and should be plentifully supplied with water. Vigorous well-rooted plants appreciate an occasional dose of manure water. These plants thrive best in a shady part of the *Cattleya* or Intermediate house, with the foliage well up to the roof glass. Plenty of light is good for them, but strong direct sunshine will injure the foliage and check growth. *C. veratrifolia* may occasionally be seen growing vigorously when subjected to the ordinary stove-house treatment.

PLEIONES.—Such *Pleiones* as *P. maculata*, *lagenaria*, *præcox*, and the variety *Wallichiana* need plenty of light, air, and water until the foliage begins to change colour, when the compost should be kept merely moist. Within a few weeks after the leaves have fallen, the flowers will begin to

appear from the base of the newly-made pseudobulbs, and, if kept in a rather dry and cool position, the pretty flowers will last for some considerable time. Even when used for room decoration the flowers last a long time, neither the dry air nor lack of light affecting them or the plants; in fact they always seem to break away stronger after their short rest in the dwelling house. Pleione flowers are easily gathered by giving them a gentle pull, when the stem will readily part from the base of the breaks, and will be much longer than when cut.

MISCELLANEOUS ORCHIDS.—Well-rooted plants of *Peristeria elata* (the Dove Orchid) that are growing freely in the Warm house will need plenty of water at the root, and must be gradually exposed to more sunlight. Any plants of *Chysis bractescens*, *C. lævis*, *Limminghei*, *aurea*, *Chelsoni*, and *Sedenii* that have been growing in the Cattleya house, and are rather backward, should at once be removed to a warmer temperature, where their growths will mature more quickly. The roots will need plenty of moisture until the leaves commence to change colour and fall off, when the plants may be removed to a sunny position in the Cattleya or Mexican house.

CÆLOGYNE CRISTATA.—Well-established plants of *Cœlogyne cristata* now need abundance of water at the root, but constant saturation should be avoided, or the compost will quickly decay, and the plants suffer thereby. As the new pseudobulbs commence to form, occasional applications of weak liquid manure water will be beneficial. Elevate each plant well up to the roof glass, and gradually accustom them to more sunlight and air. Over-dryness at the root or in the atmosphere at this season is almost sure to result in small weakly growths.

BARKERIAS.—The different species of *Barkeria*, as *B. elegans*, *Skinneri*, *spectabilis*, *Lindleyana*, and *cyclotella* are well worthy of attention, as their flower spikes, which are large in proportion to the size of the plants, present a gay appearance for a long time during the dull season. These plants are now growing rapidly under Mexican house treatment, and their development should be encouraged in every respect. Except during the hottest part of the day, afford the plants very little shade. They should be firmly fixed in pots, filled with crocks, and surfaced with a thin layer of living sphagnum moss. When growing freely they appreciate the sphagnum growing luxuriantly around their base. While at rest keep them well on the dry side.

COOL HOUSE.—In the Cool house the majority of the *Lycastes* are in full growth, and the plants will require copious waterings from now until the pseudobulbs are fully made up. The same remarks apply to *Odontoglossum grande*, *Williamsianum*, *Schlieperianum*, *O. Insleayi* and its variety *splendens*. Neither these nor the *Lycastes* should be sprayed overhead at any time, as they are prone to decay if water remains in the growths.

ONCIDIUMS.—Some of the plants of *Oncidium Kramerianum* and *O. Papilio*, known as the Butterfly Orchids, are now in bloom, and will continue for a considerable period to produce fresh flowers from each stem. It is always advisable to study the future welfare of these plants, and not prolong their flowering season unduly, or the plants will deteriorate and possibly dwindle away. Remove each spike, therefore, when it has produced three or four flowers. These beautiful and interesting Orchids prefer a light position at all times, and the plants should be suspended from the roof glass of the *Cattleya* house. Both may be grown in shallow pans, and require a very small quantity of material in which to root. Whilst making their growth, plenty of root moisture is necessary, but when at rest keep the compost rather on the dry side.

MASDEVALLIAS.—In a representative collection of these plants there are some of the species or hybrids in bloom at all seasons. One section is characterised by its brilliant colours, and includes *M. Veitchiana*, *amabilis*, *Barlæna*, *ignea*, *coccinea* (*Harryana*), and its numerous varieties, and all are of vigorous growth, and very floriferous. The orange-scarlet *M. ignea* and its varieties are very desirable plants, flowering in winter and early spring, and remaining in good condition a long time. Of the distinct species deserving of general cultivation are the yellow-flowered *M. Davisii*, and the pure white *M. towarensis*, the latter species being specially valuable for cut flowers.

Among the dwarf-growing species may be mentioned *M. Wageneriana*, *Estradæ*, *picturata*, *O'Brieniana*, *caudata* (*Shuttleworthii*), *Arminii*, *floribunda*, *melanopus*, *hieroglyphica*, *ionocharis*, and *triadactylites*, all of which form lovely objects when well flowered. The curious and interesting *M. muscosa* and *M. xipheres* should be in every collection, being always attractive to visitors, the hairy pedicels and the extraordinary sensitiveness of the labellum being the principal attractions. Upon the slightest touch in the centre of the lip with a pin, at first slowly and then quite suddenly, it closes itself upwards on to the column, where it remains for some time before descending again. These dwarf-growing *Masdevallias* succeed in comparatively small pots or shallow pans, and should be elevated upon a separate stage well up to the roof glass, as they do not flower so well if kept far from the light.

Contrasting greatly in size of growth and flower with these dwarf varieties are *M. elephanticeps*, *Ephippium*, *peristeria*, *coriacea*, &c., which are grown principally for the singularity and quaintness of their flowers. *M. macrura*, which blooms during winter, is the giant of them all, having leaves more like a *Cattleya* in size than a *Masdevallia*, and produces large flowers of a pleasing reddish-brown colour. Many pretty and interesting hybrids are also well worthy of attention, and these include *M. Courtauldiana*,

Shuttryana and var. Chamberlainii, Gairiana, Stella, Chelsonii, Geleniana, Rushtonii, and several others.

Such species as *M. platyglossa*, *M. leontoglossa*, and several others that produce their flowers in a downward direction should be placed in shallow baskets. There are many other *Masdevallias* that could be mentioned, but it is not necessary to give a complete list.

The best months for potting or topdressing these plants, if the roots have to be disturbed, are the beginning of September and February. The present time is preferable for the majority of them, because it is now that they make the greatest number of roots, and the cool moist weather during the autumn is favourable to their speedy re-establishment. In most collections where these plants are cultivated there are sure to be some specimens that need attention. Large over-grown masses, that have become bare of foliage in the centre, may be divided and made up anew, or may be carefully separated and put into small pots and grown on into nice compact specimens. In some cases where the soil has become sour and stagnant it may be carefully removed and replaced with fresh. *Masdevallias*, especially the strong-growing kinds, make many roots, and accordingly require a good amount of space.

The pots should be two-thirds filled with clean crocks for drainage, while the potting material may consist of chopped *osmunda* fibre. Pot moderately firmly, keep the base of the leaves on a level with the rim of the pot, and carefully work the compost between the roots. Do not afford much water until the roots are seen pushing their way into the new fibre, or both they and the leaves will quickly decay. Shade the plants for a time from all sunshine, and maintain a moist atmosphere by damping between the pots two or three times a day, or, if the weather becomes colder, one damping will be sufficient. *M. towarensis* should not be disturbed by repotting now, unless a plant be in bad condition at the root. *Masdevallias* delight in plenty of fresh air, but all cold draughts should be avoided, especially when the wind is in the north, east, or north-east. Ventilate freely whenever the external air is calm and moist, and the temperature outside is above 50°.

COOL HOUSE.—Other plants that thrive well under the same cultural conditions as the *Masdevallias* are *Pleurothallis*, several of which are well worth growing on account of the singular beauty and curious structure of their flowers, as *P. Roezlii*, *picta*, *ornata*, *punctulata*, *macroblepharis* (the Gnat Orchid), *rhombipetala*, &c., also many kinds of *Restrepia*, *Octomeria*, *Stelis*, *Aërides japonica*, *Angræcum falcatum* (with fragrant white flowers), *Promenæa xanthina*, *stapelioides*, and *Rollissonii*, *Stenoglottis fimbriata*, the pretty Australian *Sarcochilus Fitzgeraldii*, *Hartmannii*, &c., &c.

ODONTOGLOSSUM.—Few Orchids are more highly appreciated than the

Odontoglossum, especially the *O. crispum* and *Pescatorei* types, also the numerous beautiful hybrids obtained from these and other Cool house species. Where a large collection of these Orchids are grown there are always some of them in bloom. Those which flowered early in the year are now making new growth, and the roots from these growths will soon be pushing freely in all directions, so that no time should be lost in affording fresh material to those requiring it. Although individual plants may be repotted at almost any time of the year, the month of September is the best time for a general overhauling of the plants, and for giving to those that require it fresh pots, materials, &c.

At this season the air is of so genial a nature that with very little trouble a suitable atmosphere for the plants can be maintained, and this, as every cultivator knows, is of the greatest assistance to the plants in quickly re-establishing themselves. The young breaks now pushing will soon send out roots from their base, which, having new and fresh compost to root in, are well at home before winter commences. Those plants that are in a dormant condition should not be disturbed by repotting until their new growths are several inches high. A suitable compost for these Cool house plants is one consisting of *osmunda* fibre, *Al* fibre, cut up moderately fine, and chopped sphagnum moss in equal proportions, these being well mixed together, and a few small crocks added in the process of repotting, to keep the soil porous. Some growers prefer the addition of *polypodium* fibre, others *osmunda* fibre only, and, in many cases, with very good results. In all cases the pots should be clean, and about half-filled with crocks. Pot each plant with moderate firmness, keeping the base of the young growths about on a level with the rim of the pot.

Some old plants may be in bad health through overflowing, &c., and any such should be turned out of their pots, and, when thoroughly cleansed, placed in pots as small as it is possible to get them into. Healthy specimens that need increased root room should be merely turned out of the old receptacles and placed into larger pots without otherwise disturbing the roots. There will probably be several back pseudobulbs on nearly all the plants. These may be severed at the rhizome, leaving two or three bulbs behind each leading growth. The back bulbs may be placed in small pots filled with crocks, and when they break may be potted.

After repotting afford water sparingly, keeping the surface of the compost fairly moist, then, as time goes on, and the plants are making suitable progress, the amount of water may be increased gradually, always allowing the compost to become moderately dry before it is again watered. Keep the atmosphere fairly moist. Admit plenty of fresh air, especially at night, whenever the weather is mild, and always shade the plants from all strong sunshine.

AËRIDES SCHRÖDERI.

AN interesting Aërides has just flowered with Mr. E. V. Low, Vale Bridge, Haywards Heath. It was obtained from the collection of



Fig. 34. AËRIDES SCHRÖDERI.

the late Mr. R. I. Measures, of Camberwell, on its dispersal a few years ago. The plant has a notable history. It originated in the collection of Mr. J. H. Schröder, of Stratford Green, Essex, about seventy years ago, and was figured and described in 1850, under the name of *O. maculosum* Schröderi, Henfr. (*Gard. Mag. of Bot.*, ii. p. 121, with plate and fig.). It

is said to have been purchased about six years previously, at Stevens' Rooms, Covent Garden, out of a small importation from the hills of Bombay. Mr. Schröder then remarked: "My attention was drawn to it by its very distinct habit, and the remains of a flower-spike from every leaf. We have flowered it now for three years, and each year finer than the preceding. It appears to be a hybrid between *Aërides crispum* and *maculosum*, and on that account I value it the more, as I do not think it is likely to be imported again." The remark is significant, for at that time no artificially-raised hybrid Orchid was in existence, and the date was at least two years before the appearance of *Phalænopsis intermedia*, hitherto considered to be the earliest recognised tropical natural hybrid Orchid. Henfrey himself remarked: "This plant seems to bear a close resemblance to *A. maculosum*, from which it can hardly be specifically distinct, although in the shape of the lateral teeth of the lip, and in the bifid tubercle between them, it appears to differ slightly. Considering the much greater differences between the other species we prefer to regard this as a variety." Some time later *A. maculosum Schröderi* was also well figured in *Pescatorea* (t. 33).

An interesting addition was made to its history by Mr. John Day, who, in June, 1870, made a painting of the flowers (*Orch. Draw.*, xv. t. 71). He then remarked: "One of the most beautiful varieties of this exquisite genus in cultivation. It differs in the general habit and appearance of the plant from *A. maculosum* (of which it is considered to be a variety) very strikingly. It is a far taller and more vigorous plant, attaining to the height of a foot or eighteen inches, and bearing 30 or 40 leaves. It is much freer in growth, and much more easy to cultivate. All the plants, and there are many in cultivation, are said to have been propagated from a single specimen bought at Stevens' by Mr. Schröder, which he had the discernment to pick out of an importation from Bombay. He has told me he made £300 or £400 by it. It is a plant which always maintains its prices, small plants always fetching £20 at Stevens', at the least, and when stronger £40 or £60."

The idea of its being a natural hybrid is fairly borne out by the facts, for, though most resembling *A. maculosum* in floral details, it is much nearer to *A. crispum* in its elongated stem. Unfortunately, no specimen is available for a more exact comparison. The two species in question are known to grow together, and the late Dr. Theodore Cooke collected both at Mahableshwar, in the Deccan. If this view is correct, the name *A. Schröderi*, under which it was known in gardens (*Allg. Gartenz.*, 1855, p. 226), and as which it was subsequently figured (*Gard. Chron.*, 1880, i. pp. 492, 493, fig. 87), is the correct one. Through the courtesy of the Editor of the *Gardeners' Chronicle*, we are able to reproduce this figure.

Probably Reichenbach overlooked the preceding when, in 1882, he described *Aërides illustre* as "n. hyb. nat.?" (*Gard. Chron.*, 1882, ii. p. 71). He remarked: "Grand and glorious as this plant is, it is very difficult. It was selected out of an importation of *Aërides crispum* at Mr. Low's by reason of its having very broad and short leaves, with comparatively few dark spots. Now these broad leaves and the apparently unbranched raceme keep it away from *Aërides maculosum*. It has also larger flowers, sepals and petals much broader, with a lilac hue on the white colour, and with very few blotches, mostly only on the inner side of the petals. The lip is grand, conspicuous by its finest amethyst purple, with those longitudinal marks at the base which form a character of *maculosum*. The basal callus is bigeminous, sulcate in the middle. The spur is exserted, and quite that of *A. maculosum*. The column gives me the impression of being intermediate between the long one of *A. crispum* and the short one of *A. maculosum*. I obtained this grand thing from Sir Trevor Lawrence."

Of this, unfortunately, neither specimen nor figure is available for comparison. Messrs. Veitch associate it doubtfully with *A. crispum* (*Man. Orch.*, vii. p. 57), but it is clearly intermediate, and may be only a form of *A. Schroederi*. If the pollen of *A. maculosum* is available, it would be interesting to cross the two species together.

R. A. ROLFE.



HARDY CYPRIPEDIUMS.



NORTH America was formerly thought to be the headquarters of the hardy *Cypripediums*, several of which have long been known in gardens, but the discoveries of recent years have shown that they are still more numerous in Eastern Asia, and in view of the probability of more of them being introduced to cultivation a correspondent suggests that some notes on them would be interesting. The remark recalls the fact that an outline of the genus was given in these pages in 1896 (*O.R.*, iv. pp. 332-334), at which time 28 species were known, and it would be useful to enumerate those that have since been described. We may taken them in their chronological order.

C. YATABEANUM, Makino in *Bot. Mag. Tokyo*, xiii. p. 91.—A Japanese species, described in 1899, from materials collected on Mt. Togakushi-yama, in the province of Shinano, by R. Yatabe. The Japanese name is given as Kibana-no-atsumoriso, and it is said to be closely allied to *C. guttatum*, Swartz, but to be remarkable for the clavate-spathulate apex of the petals. The sepals and petals are yellowish-green and the lip purplish.

C. VEGANUM, Cockerell & Barker, in *Proc. Biol. Soc. Washingt.*, xiv. p. 178.—A North American species, described in 1901, from materials collected

at Sapello Canyon, Las Vegas Range, N. Mexico, at about 8,000 feet elevation, flowering in June. It is said to be allied to *C. pubescens* and *C. parviflorum*, but to differ from both. The flowers are yellow and very slightly fragrant.

C. KNIGHTIÆ, A. Nelson in *Coult. Bot. Gazette*, xlii. p. 48.—A North American Species, described in 1906, from materials collected at Medicine Bow Mountains, Wyoming, by Mrs. Knight. It is allied to *C. fasciculatum*, Kellogg, and has dark purple sepals and petals, and ochroleucous or greenish yellow lip, with the infolded margin dark purple. It has also been found at Uinta Mountains, Utah, and Estes Park and Encampment Creek, Colorado.

C. WILSONII, Rolfe in *Kew. Bull.*, 1906, p. 379.—A Chinese species, collected by Mr. E. H. Wilson in the province of Szechuen, at Meng Hu Kang, a pass between Wangtung and Mosimien, on the road from Tzutati to Tatienlu, in woods in dense shade at 8000 feet elevation. It is the largest-flowered species known, and is allied to *C. fasciolatum*, Franch. The sepals and petals are alternately striped with yellow and chocolate, and the large globose lip is light yellow with chocolate spots.

C. SPECIOSUM, Rolfe in *Kew Bull.*, 1911, p. 207.—A Japanese species, allied to the Siberian *C. macranthum*, Swartz, but having white or pale pink flowers, veined with rose. It is said to extend as far North as Urup, in the Kurile Islands. It is figured at t. 8386 of the *Botanical Magazine*.

C. WARDIÆ, Rolfe in *Notes. R. Bot. Gard. Edinb.*, viii. (1913), p. 128.—A Tibet species, described from materials collected by F. Kingdom Ward at Kung-a-tong, on broken limestone cliffs in the shade of the deep forest, at 10,000 feet elevation. It is allied to *C. guttatum*, Swartz. The colour is not recorded, but the dried specimen shows some large purple spots on the lip, while the rest of the flower is pale in colour.

C. BARBEYI, Camus, *Monogr. Orch. Eur.* (1908), p. 453.—This is the natural hybrid described and figured by Barbey, in 1891, under the name of *C. Calceolus* × *macranthos*, which is now believed to be identical with *C. ventricosum*, Thunb. Its history has been given at pp. 185-186 of our twelfth volume.

C. FRANCHETII, Rolfe in *Orch. Rev.*, xx. (1912) p. 358, fig. 49.—An ally of *C. macranthum*, Swartz, with which it was formerly confused, but easily separated by its copiously villous stems, and globose lip. It was introduced by Mr. E. H. Wilson from the Tibet borderland, and flowered at the Arnold Arboretum in June, 1912. It also occurs in several localities in Western China at about 7000 feet elevation.

C. MICROSACCOS, Kranzl. in *Journ. Russ. Bot.*, 1913, p. 58.—A Siberian plant, described from materials collected by Docturovsky, near the river Tirma. The sepals and petals are described as purple brown, and the lip

as yellow. It is said to be near *C. Calceolus*, but to have broader leaves, though it may be a variety of it.

These, if all are distinct, would bring the number of species up to 36, of which 22 are exclusively Asiatic, 12 exclusively American, and two—*C. arietinum* and *C. guttatum*—common to both. The Asiatic species are most common in China, where 16 are found, of which *C. japonicum* occurs also in Japan, *C. tibeticum* in Northern India, and *C. arietinum* in North Temperate America, while *C. guttatum* extends from Central Russia, through Asia to Alaska. Three others occur in the Himalayas, two in Japan, and three in Siberia (one, however, being doubtful), and of these *C. Calceolus* extends westward to Europe, as far as Britain. The 14 American species are northern with the exception of *C. Irapeanum*, a large yellow-flowered species which is a native of Mexico and Guatemala.

Two of the Asiatic species have been introduced to cultivation since our previous enumeration, both by Mr. E. H. Wilson, namely *C. tibeticum* and *C. luteum*. The former flowered with Messrs. James Veitch & Sons, in April, 1905, and was figured at t. 8070 of the *Botanical Magazine*. It is an ally of *C. macranthum*, and occurs in the Chino-Tibet borderland at 10,000-13,000 feet elevation. Its extreme abundance may be seen in a photograph by Mr. Wilson (*O.R.*, xxi. p. 81, fig. 22). *C. luteum* flowered at the Arnold Arboretum in May, 1911, and closely resembles *C. Reginae* except in having yellow flowers. Its history and figure have already appeared (*O.R.*, xxi. p. 80, fig. 21).

As to the other cultivated species, *C. speciosum* and *C. Franchetii* are mentioned above, while *C. macranthum* and *C. Calceolus* are too well known to require description. *C. japonicum* is remarkable for its palm-like leaves, the veins radiating to the extreme margin, while the sepals and petals are greenish, and the large white lip has a few purple veins. *C. guttatum* is a very pretty little plant, having medium-sized white flowers, with large red-purple blotches (*Bot. Mag.*, t. 7746). Lastly, *C. debile* is a very singular Japanese species, bearing a pair of nearly opposite cordate leaves, and a small drooping flower, with light green sepals and petals, and a small white lip, veined with purple round the mouth (*Bot. Mag.*, t. 8183). The other Chinese species, so far as we know, are not yet in cultivation. R.A.R.

CATTLEYA WARSCEWICZII VAR. MRS. E. ASHWORTH.—This is a very beautiful variety of *C. Warscewiczii*, differing from the type in having blush-pink flowers, and the blotches in the throat very light yellow. A fine plant was exhibited at the recent Holland House Show by Messrs. Charlesworth & Co., Haywards Heath, and received a First-class Certificate. The variety has been known for some eighteen years, for it was exhibited at a meeting of the R.H.S. held on July 27th, 1897, by E. Ashworth, Esq.,

Harefield Hall, Wilmslow, and received an Award of Merit (*O.R.*, v. p. 255). It was then recorded as having blush-white flowers, with a tinge of yellow on the disc of the lip, and a small lilac mark in front.

WAR ITEMS.—Orchidists, says the *Gardeners' Chronicle*, will be interested to hear news of M. Chas. Maron, the well-known raiser of Orchids of Brunoy, France, who has officiated with many of them at the International Exhibitions both in England and on the Continent. M. Maron writes that all the male members of his family are away on active service. Assistance in the Orchid houses being difficult to get, he is almost alone, and can only do the most important work. Nevertheless, he says the plants do not seem much the worse for lack of attention. He has some specially interesting things which he is looking forward to flowering in the autumn, notably crosses between *Brassocattleya Orpheus* and *Cattleya Warscewiczii alba*, and other crosses of this pure white form of *C. Warscewiczii*.



CATTLEYA WARSCIEWICZII FRAU MELANIE BEYRODT.



THIS is one of the most beautiful *Cattleyas* in cultivation, as the large and well-shaped white flowers are set off very effectively by the broad purple front lobe of the lip, itself neatly margined with white. It is interesting to note that a group of eight well-grown plants from the collection of John Leeman, Esq., West Bank House, Heaton Mersey, appeared at the meeting of the Manchester Orchid Society held on July 22nd last, making a very effective display. Two good plants were also exhibited at the Royal Horticultural Hall on August 4th, from the collection of H. T. Pitt, Esq., Rosslyn, Stamford Hill. The variety has an excellent constitution, and lends itself well to propagation, for a good many plants are now known, and it may be interesting to give its history.

The earliest recorded appearance that we know of is July, 1904, when it was exhibited at the Holland House Show of the R.H.S. by Herr Otto Beyrodt, Marienfelde, Berlin, and was awarded a First-class Certificate. A figure was then published (*Journ. Hort.*, 1904, ii. p. 257), in which its general character is well shown. How long previously the variety may have been known we cannot say, but three years later Mr. J. M. Black, speaking of Orchids at Enfield, alluded to *Cattleya gigas* Frau Melanie Beyrodt as "the famous albino which this firm (Hugh Low & Co.) has placed in nearly all the good *Cattleya* collections in Europe" (*O.R.*, xv. p. 144). He added: "This plant has a wonderful constitution, and simply delights in being cut up. To illustrate this, a leading bulb which had been cut off before last growing season made two growths nearly equal to itself

in size." We believe that the figure given at p. 240 of our last volume represents one of the divisions of this particular plant. In August, 1906, it received a Diploma of Honour at Brussels, and was figured under the name of *C. Warscewiczii* var. *Madame Melanie Beyrodt* (*Cogn. & Gooss. Dict. Ic. Orch.*, Catt. 1 A). The finest plant that we remember to have seen was exhibited by Lt.-Col. G. L. Holford at the R.H.S. meeting on July 21st, 1908. It bore 22 flowers, and received a Cultural Commendation.

OTHER WHITE VARIETIES.

The earliest true albino that we know of appeared in the establishment of Messrs. Siebrecht & Wadley, New York, in 1888, and was described by Reichenbach under the name of *C. labiata Warscewiczii rochellensis* (*Gard. Chron.*, 1888, ii. p. 533). It is said to have snow white flowers, with a deep yellow disc (the two blotches being confluent), and an exceedingly light, evanescent purplish hue on the front of the lip. It is figured in *Reichenbachia* (ser. 1, ii. p. 81, t. 85), where, however, the purple tinge does not appear. It passed into the collection of F. L. Ames, Esq., North Easton, Mass., but we do not know what subsequently became of it. It was noted as *C. Warscewiczii rochellensis* in these pages in 1898 (*O.R.*, vi. p. 326).

In 1899 a record of another white variety appeared (*O.R.*, vii. p. 232), in an account of the collection of D. B. Rappart, Esq., Liscard. Mr. Burberry then wrote: "Much interest is just now centred on a plant of what was purchased (newly imported) for a pure white *Cattleya Warscewiczii* (gigas), as the time is approaching when it may probably flower. We earnestly hope it may turn out to be what it was represented to be." Of this also we have no further information.

Next we come to *C. Warscewiczii* Wigan's var., which received a First-class Certificate from the R.H.S. on August 29th, 1901. It was described as a beautiful white form, having the front lobe of the lip marbled with rose, except at the margin (*O.R.*, ix. p. 339).

C. Warscewiczii White Queen flowered in the collection of W. P. Burkinshaw, Esq., Hessle, E. Yorks., and received an Award of Merit from the R.H.S. on August 4th, 1903. It was described as a beautiful form, having white sepals and petals, and the lip mauve-purple in front, margined with lilac, and with the usual yellow blotches in the throat (*O.R.*, xi. p. 266).

C. Warscewiczii Our Queen was exhibited by Messrs. Sander & Sons, St. Albans, at the R.H.S. Summer Show, held at Chelsea on July 11th to 13th, 1905, and received an Award of Merit. It was described as a beautiful form, having white sepals and petals, and the lip rose-purple, with the usual pair of pale blotches in the throat (*O.R.*, xiii. p. 246).

Still later we have the chaste *C. Warscewiczii alba*, for which Messrs. Lager & Hurrell, Summit, N.J., U.S.A., received a Gold Medal at the

Horticultural Show held at Boston, Mass., on March 26th, 1910. It is said to have come out of a batch of the species imported in the previous summer, and the flowers are described as absolutely pure white, with a suffusion of greenish yellow in the throat of the lip (*O.R.*, xviii. p. 232, fig. 14). It was afterwards acquired by Messrs. Stuart Low & Co. (*O.R.*, xix. p. 223), and thence passed into the collection of M. Firmin Lambeau, Brussels, who exhibited it at the R.H.S. meeting held on July 16th, 1912, when it received a First-class Certificate and a Gold Medal (*O.R.*, xx. p. 251). It is now being much used for hybridising, and is said to have been used on all the white forms that were available, and among them C.



Fig. 35. *CATTLEYA WARSCEWICZII ALBA*.

Mossiae Wageneri, on which a fine capsule was pointed out as likely to give a pure white form of *C. Adonis* (*O.R.*, xxi, p. 214).

Another beautiful white form was recorded in 1911 (*O.R.*, xix. p. 319), when a photograph was received from Mr. Andrew McDonald, Superintendent of the J. B. Coryell Estate, Menlo Park, San Mateo, California. There were three flowers, described as $9\frac{1}{2}$ to 10 inches across, and pure white at first, with some greenish yellow in the throat, but after the eighteenth day it developed a slight pink tinge in front of the lip, in this respect recalling the variety *rochellensis*.



SOCIETIES.



ROYAL HORTICULTURAL.

THE meeting held at the Royal Horticultural Hall, Vincent Square, Westminster, on Wednesday, August 4th, was smaller than usual, but a few interesting Orchids put in an appearance, and the award list consisted of one First-class Certificate, two Awards of Merit, and three medals.

Orchid Committee present: J. Gurney Fowler, Esq. (in the Chair), James O'Brien (hon. sec.), Gurney Wilson, W. Bolton, R. Brooman White, Pantia Ralli, R. G. Thwaites, J. Charlesworth, Arthur Dye, S. W. Flory, and F. Sander.

J. Gurney Fowler, Esq., Brackenhurst, Pembury (gr. Mr. Davis), sent a good example of *Cattleya Rex*, bearing a four-flowered inflorescence, the richly-coloured *C. Warscewiczii saturata*, in which the usual yellow blotches are suppressed, *C. Miss Louisa Fowler*, and fine forms of *Læliocattleya eximia* and *Henry Greenwood*.

E. G. Mocatta, Esq., Woburn Place, Addlestone (gr. Mr. Stevenson), sent a fine hybrid between *Læliocattleya George Woodhams* and *Cattleya Rothschildiana*, having rose-coloured sepals and petals, and a rich purple lip, with some yellow veining in the throat.

H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood), showed the striking *Brassia longissima*, and two fine examples of *Cattleya Warscewiczii Frau Melanie Beyrodt*.

Messrs. Charlesworth & Co., Haywards Heath, staged a choice group, including the handsome *Lycaste Balliæ*, *Cattleya Gaskelliana alba*, a very dark form of *Odontioda Brewii*, and a number of well-grown *Odontoglossums*, conspicuous among them being two beautiful examples of *O. armainvillierense xanthotes* (Silver Banksian Medal).

Messrs. Stuart Low & Co., Jarvisbrook, Sussex, staged a small group, particularly interesting being a plant of the rare *Aërides maculosum Schröderi*, a good example of *Rhynchostylis retusa*, *Vanda cœrulea*, some good forms of *Cattleya Gaskelliana*, and a number of *Odontoglossums* and others (Silver Banksian Medal).

Messrs. Sander & Sons, St. Albans, staged a small group of interesting things, including good examples of *Anguloa Cliftonii* and the true *A. uniflora (eburnea)*, *Cœlogyne Mooreana*, and some good *Læliocattleyas*, the best being a fine example of *L.-c. wisetonensis* bearing two spikes and an aggregate of nine flowers (Silver Banksian Medal).

Messrs. Flory & Black, Orchid Nursery, Slough, sent *Odontoglossum Meredithiæ*, *O. Cerissimum* (*Ceres* × *armainvillierense*), a promising thing,

having the flowers prettily tinged with lilac and blotched with red-brown, and an *Odontioda* derived from *O. Bradshawiæ* and *Odontoglossum Lambeauianum*.

FIRST-CLASS CERTIFICATE.

CATTLEYA SYBIL VAR. *SCINTILLANT* (*iridescens* × *Dowiana aurea*).—A handsome form, having light rose sepals and petals, flushed with yellow, the base and isthmus of the lip orange with reddish lines, the small side lobes paler, and the broad front lobe deep ruby-red. Exhibited by J. Gurney Fowler, Esq., Pembury. It may be added that seven forms of this interesting hybrid were figured at page 265 of our last volume, and the present form approximates to the bicolor type there mentioned.

AWARDS OF MERIT.

CATTLEYA HAROLD FOWLER'S VAR. (*Gaskelliana alba* × *Warscewiczii* *Frau Melanie Beyrodt*).—A very pretty form, having white flowers of intermediate character, with a purple blotch on the lip in front of the yellow disc. Exhibited by J. Gurney Fowler, Esq.

LÆLIOCATTLEYA THYONE FOWLER'S VAR. (*L.-c. Ophir* × *C. Dowiana aurea*).—A charming form, having cowslip yellow sepals and petals, and the front lobe of the lip claret-purple, with some yellow lines from the base. Exhibited by J. Gurney Fowler, Esq.

At the meeting held on August 17th Orchids were more numerous, and included a number of choice varieties, three of which gained First-class Certificates and three Awards of Merit. Three Medals were also awarded to groups.

Orchid Committee present: Sir Harry J. Veitch (in the Chair), J. O'Brien (hon. sec.), Sir Jeremiah Colman, Bart., R. A. Rolfe, R. G. Thwaites, Pantia Ralli, T. Armstrong, W. Cobb, J. Charlesworth, W. H. Hatcher, J. E. Shill, C. H. Curtis, W. P. Bound, A. Dye, W. H. White, S. W. Flory, W. Bolton, Gurney Wilson, and J. Gurney Fowler.

J. Gurney Fowler, Esq., Brackenhurst, Pembury (gr. Mr. J. Davis), was awarded a Silver Flora Medal for a choice group, including *Cattleya Hardyana rubens*, a large and richly-coloured form, good examples of *C. Dowiana aurea* and *Gaskelliana*, *Læliocattleya Prunella* (*C. Dowiana aurea* × *L.-c. George Woodhams*), having rose-purple sepals and petals, and a darker lip, with some yellow veining in the throat, *L.-c. eximia* vars. *rubens* and *delicatissima*, the latter a beautiful light blush form bearing an inflorescence of five flowers, *Brassocattleya Ilene*, and a good plant of *Brassia longissima* bearing two spikes.

Mrs. Bischoffsheim, Warren House, Stanmore (gr. Mr. F. Jones), sent *Læliocattleya rubens* Warren House var., a large and handsome form, having rose-coloured flowers, with a rich crimson lip.

Sir Herbert Leon, Bart., Bletchley Park, Bucks (gr. Mr. Cooper), sent a plant of *Cypripedium Transvaal*, in which the characters of *C. Rothschildianum* and *Chamberlainianum* are combined.

C. J. Lucas, Esq., Warnham Court, Horsham (gr. Mr. Duncan), showed *Cypripedium Warnham Fairy* (*Fairrieianum* × *Clinkaberryanum*), a very curious hybrid, in which the lateral sepals are free, and somewhat divergent on each side of the lip, and the narrow petals drooping.

R. G. Thwaites, Esq., Chessington, Streatham (gr. Mr. Hannington), sent plants of *Cattleya Roupelliana* and *C. Euphrasia*.

Messrs. Charlesworth & Co., Haywards Heath, staged a choice group, including *Odontoglossum crispum xanthotes* with four spikes, a fine *O. Rolfeæ*, *O. laudatum*, *O. armainvillierense xanthotes*, a good example of *O. Harryanum*, *Paphinia cristata*, a large specimen of *Oncidioda Charlesworthii* with six panicles, *Odontioda Brewii* and *Bradshawiæ*, *Cattleya O'Brieniana alba*, *C. Gaskelliana alba*, and *Odontonia Lairesseæ* (Silver Flora Medal).

Messrs. Sander & Sons, St. Albans, staged an interesting group, including a fine *Anguloa Cliftonii*, *Bulbophyllum barbigerum*, *densiflorum*, and others, *Brassia Forgetiana*, the rare *Trichopilia Galeottiana*, *Cattleya Atalanta*, *C. Queen of Sheba* (*Hardyana* × *Schilleriana*) bearing spikes of five and seven flowers, *Læliocattleya Mauretania*, *Clonia*, and *bletchleyensis*, *Cœlogyne perakensis* and *Mooreana*, *Eria velutina*, *Dendrobium longicornu*, *Physosiphon Loddigesii*, and various other botanical species (Silver Banksian Medal).

Messrs. Flory & Black, Orchid Nursery, Slough, sent a very pretty form of *Odontoglossum Smithii*, *Anguloa Cliftonii*, and *Brassocattleya Ilene* var. *Goliath*, bearing an exceptionally large flower.

Messrs. Hassall & Co., Southgate, sent three diverse forms of *Cattleya Sybil*, with buff, flame-coloured and rose sepals and petals, and all with the bicolor type of lip. (Seven forms of this variable hybrid were figured at p. 265 of our last volume.)

Messrs. Stuart Low & Co., Jarvisbrook, Sussex, sent a small group of good things, including *Cattleya Whitei* var. *fulgida*, a richly-coloured form, and *C. King-Albert*, blush white with a rosy lip and some yellow in the throat, forms of *C. Eldorado*, *Warscewiczii*, *Whitei*, and *Minucia*, *Aerides Lobbii*, and a good form of *Odontoglossum nebulosum*.

FIRST-CLASS CERTIFICATES.

CATTLEYA HARDYANA VAR. *HIS MAJESTY*.—An exceptionally large and richly-coloured form, having rose-purple sepals and petals, and an intense crimson-purple lip, with a large amount of yellow in the throat. Exhibited by Messrs. Stuart Low & Co.

ODONTONIA CHARLESWORTHII FOWLER'S VAR. (*M. vexillaria* × *O.*

Uroskinneri).—A very handsome form, with larger flowers and a laxer inflorescence than in the type, which was figured at p. 241 of our last volume. The flowers are rosy mauve, with some darker blotching on the sepals and petals, and some white markings on the lip, which has a ruby-red band round the yellow crest of the lip. Exhibited by J. Gurney Fowler, Esq.

ODONTOGLOSSUM PRESIDENT POINCARÉ (parentage unrecorded).—A large and handsome hybrid, with very broad light purple sepals and petals, with some pale lilac blotches at the apex, and the lip white, blotched with dark purple in front of the bright yellow crest. Exhibited by J. Gurney Fowler, Esq.

AWARDS OF MERIT.

CATTLEYA DRAPSIANA VAR. *VINOSA* (*Dowiana* × *Mrs. Pitt*).—A richly-coloured form, having dark vinous purple sepals and petals, and the broad, crisped lip dark claret-red, with an orange-yellow centre and some yellow lines at the base. Exhibited by J. Gurney Fowler, Esq.

CATTLEYA SYBIL VAR. *ROTUNDOBELLUM* (*Dowiana aurea* × *iridescens*).—A handsome form of the entire lipped type. The sepals and petals are yellow tinged with rose, and the lip rosy crimson with a large orange-yellow throat. Exhibited by J. Gurney Fowler, Esq.

LÆLIOCATTLEYA GOLDEN-QUEEN (parentage unrecorded).—A very pretty hybrid, of good shape, having light apricot yellow sepals and petals with faint rosy veining, and a light ruby-red lip, shading off to rose at the margin, and the throat deep orange-yellow. Exhibited by Messrs. Flory & Black.

At the meeting held on August 31st exhibits were not numerous, but included several choice things, and the awards consisted of three First-class Certificates, two Awards of Merit, and two medals.

Orchid Committee present:—J. Gurney Fowler, Esq. (in the Chair), James O'Brien (hon. sec.), Sir Harry J. Veitch, Sir Jeremiah Colman, Bart., R. A. Rolfe, Pantia Ralli, T. Armstrong, A. McBean, Walter Cobb, J. Charlesworth, W. H. Hatcher, C. H. Curtis, J. E. Shill, W. H. White, S. W. Flory, W. Bolton, and Gurney Wilson.

J. Gurney Fowler, Esq., Brackenhurst, Pembury (gr. Mr. J. Davis), received a Silver Flora Medal for a small group of choice things, including forms of *Cattleya Iris* and *Hardyana*, *Odontonia McNabiana*, a richly-coloured *Læliocattleya George-Woodhams*, and a few others.

R. G. Thwaites, Esq., Chessington, Streatham, staged an interesting little group, including *Læliocattleya callistoglossa* and *rubens*, *Odontioda Thwaitesii*, *chessingtonensis*, *Vuylstekeæ*, and *Devosiana*, with examples of *Odontoglossum Uroskinneri* and *armainvillierense*.

Lt.-Col. H. V. Warrender, High Grove, Pinner (gr. Mr. Strong), sent a good plant of *Cattleya Clarkiæ* with three flowers.

Messrs. Charlesworth & Co., Haywards Heath, staged a choice group, including two richly-coloured forms of *Vanda cœrulea*, a good example of *Lælia Bella* (figured at p. 265 of our eighteenth volume), *Catasetum macrocarpum* and the rare *C. Russellianum*, a good example of *Habenaria Susannæ*, *Cattleya Alcimeda* (*Gaskelliana alba* × *labiata alba*), the rare *Miltonia Schroederi*, *Sophrocattleya Laconia*, *Odontioda Red-Cross*, *Sophrolælia Gratrixiæ*, and several pretty *Odontoglossums* and *Cypripediums*.

Messrs. Flory & Black, Orchid Nursery, Slough, sent *Brassocattleya Ilene magnifica*, a fine, rather light-coloured form, B.-c. *Andre-Maron* (*C. Schroederæ* × B.-c. *Leemaniæ*), B.-c. *Miguel* (*B. Digbyana* × *C. Carmen*), a large rosy lilac flower, with some purple marbling on the lip, and a good form of *Læliocattleya rubens*.

Messrs. Hassall & Co., Southgate, sent six plants of *Cattleya Sybil*, varying much in colour, and five of them with the bicolor type of lip, also plants of *C. Adula*.

FIRST-CLASS CERTIFICATES.

CATTLEYA SYBIL VAR. *W. R. Lee* (*Dowiana aurea* × *iridescens*).—A large and handsome form with the *Dowiana* type of lip. The sepals and petals are yellow, with a bronzy rose shade, and the broad entire lip is deep crimson, with much dark yellow veining in the centre. Exhibited by W. R. Lee, Esq., Plumpton Hall, Heywood, Manchester (gr. Mr. C. Branch).

CATASETUM PILEATUM (*Bungerothii*).—A fine plant, bearing an inflorescence of nine large white flowers, with a greenish yellow disc to the broad, shell-shaped lip. Exhibited by Sir Jeremiah Colman, Bart., Gatton Park, Reigate (gr. Mr. J. Collier).

SOPHROCATTLEYA SYLVIA (S.-c. *Doris* × *C. Hardyana*).—A handsome hybrid, bearing a flower of excellent shape, the sepals and petals being broad and dark purple in colour, and the broad lip undulate in front, and rich ruby purple with some yellow veining in the throat. Exhibited by J. Gurney Fowler, Esq.

AWARDS OF MERIT.

CATTLEYA HARDYANA FOWLER'S VAR. (*Warscewiczii* × *Dowiana aurea*).—A very beautiful form, having broad white sepals and petals, and the lip intense crimson with copious yellow veining. Exhibited by J. Gurney Fowler, Esq.

LÆLIOCATTLEYA EXIMIA DELICATISSIMA (*L. purpurata* × *C. Warneri*).—A beautiful light-coloured variety, bearing two spikes of four flowers each, the sepals and petals being pale lilac, and the lip with radiating light purple lines all round the disc, and the front blush white. Exhibited by J. Gurney Fowler, Esq.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

At the meeting held at the Coal Exchange, Manchester, on July 22nd, the members of Committee present were: Rev. J. Crombleholme (in the Chair), Messrs. R. Ashworth, J. J. Bolton, J. C. Cowan, A. G. Ellwood, J. Evans, P. Foster, A. R. Handley, J. Lupton, D. McLeod, S. Swift, H. Thorp, and H. Arthur (Sec.).

Col. J. Rutherford, M.P., Blackburn (gr. Mr. Lupton), was awarded a Large Silver Medal for a group, composed principally of *Cattleyas*, and including a fine batch of *C. Gaskelliana alba*, *Læliocattleyas*, a few *Odontoglossums*, *Odontiodas*, and others.

J. Leeman, Esq., Heaton Mersey (gr. Mr. S. Smith), was awarded a Large Silver Medal for a group, including *Cattleya Warscewiczii* var. *Frau Melanie Beyrodt* (eight plants), *C. Lord Rothschild*, *C. Comet*, *C. Gaskelliana* vars. *The Pearl* and *albens*, *Læliocattleya Dominiana*, *Admiral Dewey*, *George Woodhams*, and others.

O. O. Wrigley, Esq., Bury (gr. Mr. E. Rogers), staged fine examples of *Anguloa eburnea*, *Miltonia vexillaria*, *Maxillaria grandiflora*, *Disa grandiflora* and var. *aurea*.

Messrs. A. J. Keeling & Sons, Bradford, staged *Miltonia Queen Alexandra*, *Cypripedium Goweri magnificum*, *C. Argo-Lawrenceanum*, *Odontoglossum tripudians*, *Bulbophyllum Lobbii*, and *Masdevallia calara*.

Other interesting exhibits are recorded in the Award List.

FIRST-CLASS CERTIFICATES.

Læliocattleya Mrs. Harold King (*L.-c. epicasta* × *L.-c. callistoglossa*), a large well-set flower of good shape and substance, with a well-rounded, deep purple lip, from Mrs. R. le Doux, West Derby (gr. Mr. J. W. Fletcher).

Miltonia Leeana, a magnificent variety, the spike carrying eight flowers, and the bottom flower $4\frac{1}{2}$ in. across and $5\frac{3}{4}$ in. deep, from W. R. Lee, Esq., Heywood (gr. Mr. W. C. Branch). A Silver Medal was awarded in addition.

AWARDS OF MERIT.

Odontoglossum Lambeauianum var. *violaceum*, a home-raised seedling, and *Lycaste Arthuriana* (*plana* × *Balliæ*), from R. Ashworth, Esq., Newchurch (gr. Mr. W. Gilden).

FIRST-CLASS CULTURAL CERTIFICATE.

To Mr. E. Rogers, gr. to O. O. Wrigley, Esq., for *Phalænopsis Rimestadiana* and *Lycaste tricolor albens*.

SECOND-CLASS CULTURAL CERTIFICATE.

To Mr. J. Lupton, gr. to Col. J. Rutherford, M.P., for *Cattleya Gaskelliana albens*.

At the meeting held on Thursday, August 18th, the members of Committee present were: Rev. J. Crombleholme (in the chair), Messrs. J. C.

Cowan, J. Cypher, J. Evans, A. R. Handley, Dr. Hartley, J. Lupton, D. McLeod, W. J. Morgan, W. Shackleton, S. Swift, Z. A. Ward, and H. Arthur (Sec.).

A Large Silver Medal was awarded to R. Ashworth, Esq., Newchurch (gr. Mr. W. Gilden), for a fine miscellaneous group, including three good things which appear in the award list.

Silver Medals were awarded to Col. J. Rutherford, M.P., Blackburn (gr. Mr. J. Lupton); to Messrs. Cypher & Sons, Cheltenham, and to Messrs. Sander & Sons, St. Albans, for fine groups, the first-named containing several promising seedling *Læliocattleyas*, and the last a number of interesting botanical species.

Interesting exhibits were also sent by Mrs. R. le Doux, West Derby (gr. Mr. J. W. Fletcher); Miss Bolton, Penketh, Warrington (gr. Mr. T. Clare); S. Gratrix, Esq., Whalley Range (gr. Mr. W. W. Field); A. J. Oakshott, Esq., Bidston (gr. Mr. C. Findlow), and O. O. Wrigley, Esq., Bury (gr. Mr. E. Rogers), several of which appear in the Award List.

A fine plant of the rare *Utricularia montana*, bearing about 80 blooms, was also sent from the collection of W. Bolton, Esq., Warrington (gr. Mr. Cain). Although not an Orchid, it is generally grown with them.

FIRST-CLASS CERTIFICATES.

Cypripedium niveum Heatherlea var., a fine round flower of perfect form, from Miss Bolton.

Cattleya Sybil var. Emmeline, a fine well-set flower of even colour, with very distinct marking on the lip, from Mrs. R. le Doux.

Læliocattleya Armada (*C. fulvescens* × *L.-c. luminosa*), a large flower, of good shape and colour, with a well-lined lip, from S. Gratrix, Esq.

AWARDS OF MERIT.

Miltonia Harwoodii Ashlands var. (*C. Noëtzliana* × *M. vexillaria*), *Oncidium Mantinii* Ashworthiæ, and *Odontoglossum percultum* var., Brunette, from R. Ashworth, Esq.

Cattleya Sybil var. Arline, from Mrs. le Doux.

FIRST-CLASS CULTURAL CERTIFICATE.

Mr. C. Findlow, gr. to A. J. Oakshott, Esq., for *Miltonia vexillaria* var. Enchantress, a magnificent specimen bearing 118 flowers. A Bronze Medal was also awarded to the gardener.

RENANTHERA STORIEI.—A plant of this handsome Philippine Orchid is now flowering at Kew. It has much of the general habit of *R. coccinea*, but the flowers are larger, and the lateral sepals are covered with large crimson blotches. It is well figured in the *Botanical Magazine* (t. 7537), from a plant that flowered in the collection of the late Sir Trevor Lawrence, Bart., at Burford, in June, 1896.

CATTLEYA VICTORIA-REGINA.

THIS beautiful Cattleya was one of the earliest novelties discovered by the late M. Louis Forget, whose portrait is given on the opposite page, and as the circumstances attending its discovery are there mentioned, it may be interesting to reproduce the figure. Its history has already



Fig. 36. CATTLEYA VICTORIA-REGINA.

been given very fully (*O.R.*, ii. pp. 7, 293, 327; iii. p. 17), and it may be added that M. Forget himself was able to confirm its natural hybrid origin, which was for some time in dispute. It is evidently rare in its native habitat, and it would be interesting to know what has become of the original plants, or we do not remember to have seen one for a long time. R.A.R.

OBITUARY.

LOUIS FORGET.—We deeply regret to learn, from Messrs. Sander & Sons, St. Albans, of the death of their collector, M. Louis Forget, which took place on August 10th, in Hospital at Rennes, France, from an affection of the heart. The sad news came quite unexpectedly, as Messrs. Sander had no idea that he was seriously ill; in fact he was expecting to return to England, after having spent some months in France.

M. Forget had a long experience in the exploration of South and Central America, as his journeys extended over almost the whole district from



Fig. 37. M. LOUIS FORGET

Uruguay to Mexico, wherever there was the likelihood of finding Orchids or other interesting plants. Since his first journey to Brazil in 1891, Forget has been constantly engaged in the work, having only returned to Europe at rare intervals for a few months at a time. His first journey was to the Pernambuco district of Brazil to collect the recently-discovered—or re-discovered—*Cattleya labiata*, and thanks to his energy and persistent efforts he was able to send in that year and later on large importations from what were then unexplored districts. It was at this time that he discovered *Cattleya Victoria-Regina*, which, as he himself informed us, appeared in the first lot of *C. Leopoldii pernambucensis* from Bonconcelho,

where the latter grows in touch with *C. labiata*, and he added: "The year after I had a terrible time over it, but could not get one." The point will be understood when it is remarked that *C. Victoria-Reginia* was not then known to be a natural hybrid, and that it was hoped to obtain an importation of it.

In the early nineties, before the advent of so many hybrid *Læliocattleyas*, "*Lælia elegans*," as the plant was then called, was much sought after, and Forget visited the district and sent home consignments, among which many fine forms are said to have been found, including a pure white one, which has since been lost. This would be a form of *Læliocattleya Schilleriana*, which was at one time included under *L.-c. elegans*, and M. Forget afterwards informed us that both are found in the island of Santa Catherina, where *Lælia purpurata* grows in company with *Cattleya intermedia* and *C. Leopoldii*.

M. Forget also rediscovered *Lælia Jongheana*, a plant that had long been known from very scanty materials, and sent home a considerable importation. It was found in the district of Itabira do Campo, and M. Forget states that *Cattleya bicolor*, *Walkeriana*, *Loddigesii*, and *Lælia præstans* grow in touch with it, in the State of Minas Geraes, and that all are cool growers. More recently a large importation of *Lælia Gouldiana* was obtained through him.

Twice M. Forget went to Peru, chiefly in search of the rare *Cattleya Rex*. The first consignments were shipwrecked and lost, but the next time, notwithstanding the long journey, they arrived in fairly good condition. Forget described the plant to Messrs. Sander as "flowering profusely, on bulbs as large as *Lælia purpurata*, and constituted one of the finest sights he ever saw." On these trips he collected a large number of other Orchids, and among them the original *Anguloa uniflora*, described by Ruiz and Pavan as early as 1794, and for which another plant had long done duty in gardens, while the true plant had acquired the new name of *A. eburnea*. A number of novelties also appeared in this collection, showing that the Orchids of Peru are not yet exhausted.

These are only a few examples of M. Forget's activities. How extensive has been his travels, and how complete his knowledge of the distribution of the genus *Cattleya*, can better be appreciated in an article by him on Natural Hybrid *Cattleyas* which appeared at pp. 293-296 of our fifteenth volume (see also p. 316). These include two which we do not remember to have seen, namely, a pretty little hybrid between *Lælia harpophylla* and *L. pumila* (p. 295), and one between *C. gigas Sanderiana* and *C. Trianae bogotensis* (p. 293). The latter will be a form of *C. Ballantiana*, raised by hand. His remarks on *Odontoglossum crispum* at pp. 326-328 of the same volume further show how keen an observer he was, and it is to be

feared that much valuable information has been lost by his death. Among his most interesting letters are those describing his journeys to the eastern slopes of the Andes, which he crossed wherever he could in Peru and Bolivia.

We may conclude with Messrs. Sander's tribute to a remarkable man: "He appeared to have an iron constitution, and scarcely ever complained of his health in all the twenty-three years throughout which he was collecting and exploring. His sudden death comes therefore as a great shock and surprise to us. He was absolutely fearless out in the forests, but disliked intensely the noise and bustle of London and any large town. He was well received everywhere by the natives, owing to his tact, and he never carried firearms, not even on a month's solitary exploration down the then little-known S. Francisco River and its tributaries, in Brazil. Louis Forget was every inch a *man*. He lies buried in the cemetery of Rennes, in France." His name is commemorated in *Masdevallia Forgetiana* and *Brassia Forgetiana*, two of the numerous species introduced by him to our collections.

FREDERICK MANSON BAILEY, C.M.G.—The death is announced of Mr. F. M. Bailey, C.M.G., the veteran Colonial Botanist to the Queenstown Government, who passed away on June 20th, at the advanced age of 88 years. His "Contributions to the Flora of Queensland and British New Guinea," which have appeared from time to time in the *Queensland Agricultural Journal*, contain descriptions of a large number of Orchids, and his monumental work, *The Queensland Flora*, includes representatives of as many as fifty genera. The Orchids were published in 1902 (vol. v. pp. 1514-1592). He came of a race of gardeners, and his father, who emigrated in 1838, was at one time Government Botanist of South Australia. The deceased's early years were full of adventure. After assisting his father in founding a nursery at Adelaide, he took part, in the fifties, in the gold rush to Victoria, but was recalled to Adelaide by his father's illness. Some three years later he took some land in New Zealand, which he had to relinquish when war broke out there. Thence he went to Sidney, and later to Brisbane, where he set up a seed business, which proved unsuccessful. In 1875 he was appointed by the Queensland Government to investigate the cause of diseases in stock and crops, and afterwards became Curator of the Botanical section of the Queensland Museum. In 1881 he was appointed Colonial Botanist of Queensland, a position he held at the time of his death, though during a period of retrenchment there was an interval when the post was temporarily abolished, but Mr. Bailey continued the work without pay. It was in 1911, after a period of thirty years' service, that his work received official recognition in the award of a C.M.G. His son is Mr. J. F. Bailey, Director of the Brisbane Botanic Garden.

BRASSIA LONGISSIMA.

A VERY striking *Brassia* is occasionally exhibited under the name of *B. Lawrenceana longissima*, and the appearance of a plant at the R.H.S. meeting held on August 17th last, from the collection of J. Gurney Fowler, Esq., Brackenhurst, Pembury, reminds us that its history has never been cleared up, though its distinctness has long been recognised. It is a native of Costa Rica, and flowered in the collection of Wentworth Buller, Esq., Strete Raleigh, near Exeter, in 1868, when it was described by Reichenbach under the name of *B. Lawrenceana* var. *longissima* (*Gard. Chron.*, 1868, page 1313), the author remarking that, notwithstanding the unusual length of the segments, he could not help thinking it was but a form of the old *B. Lawrenceana*. It was also figured in the *Botanical Magazine* (t. 5748). Messrs. Veitch long ago suggested a doubt as to the correctness of this view (*Man. Orch.*, viii. p. 125), and the information that has since come to hand leaves no doubt that the two are altogether distinct.

The original *B. Lawrenceana* flowered in the collection of Mrs. Lawrence, at Ealing Park, in 1840, and was soon afterwards described and figured by Lindley (*Bot. Reg.*, 1841, Misc. p. 2, t. 18). It was said to have come from Brazil, but this was evidently a mistake, for all subsequent materials have come from Guiana, where it was collected by the late G. S. Jenman, besides which specimens have been submitted to Kew for determination by Sir John Kirk that were said to have been obtained from Surinam, and by Miss Sinnock from Demerara. This original form has comparatively short sepals and petals, as may be seen in the figure, and is nearly allied to *B. Lanceana*, Lindl., another Guiana species.

In *B. longissima* the sepals are about four times as long, and are drawn out into elongated slender filaments, while the other parts of the flower are also distinct. The habitat has been abundantly confirmed, for in May, 1890, Messrs. Sander sent it for determination from "Central America," and subsequently it has been sent by Messrs. Charlesworth & Co., and by E. Gotto, Esq., in both cases the source being stated as Costa Rica. It is far superior to *B. Lawrenceana* as a decorative plant, and is one of the most distinct *Brassias* known.

Brassia is a genus very nearly allied to *Oncidium*—to which, indeed, Reichenbach reduced it—but is readily distinguished by its much elongated, very acuminate segments. At least thirty species are known, but the majority are rarely seen in cultivation, two of the commonest being *B. verrucosa* and the stately *B. brachiata*, an allied species with much larger flowers. Several others are occasionally met with.

R.A.R.

 CULTURE OF ODONTOGLOSSUM CRISPUM.

THE subject of the last essay in the *Journal of Horticulture* monthly competition is *Odontoglossum crispum*, and the Gold Medal has been awarded to Mr. W. E. Dadson, Hookfield Gardens, Epsom, a Silver Medal being given to Mr. A. R. Moody, 28, Drake Street, Enfield.

Mr. Dadson considers that the best time for repotting is shortly after flowering, before new roots are formed. The pots must be clean and well-drained, being about half-filled with crocks, and for potting material he advises equal parts of fibrous peat and sphagnum moss, with no admixture. After potting, shade the house judiciously during bright weather, and keep the atmosphere close for a short time, watering with great caution until the roots have freely entered the material, when the supply can be increased. Soft water, whenever obtainable, should be preferred, both for root application and spraying, and it should be as nearly as possible of the same temperature as the house.

As these plants continue their growth right through the winter, watering must be carefully attended to, and although a minimum temperature of 50 degrees should be aimed at, no real damage will occur if the thermometer falls to 45. On cold nights an excellent plan is to cover the glass with mats, and when the blinds are in use they may be let down as additional protection. Excessive fire heat is never good, so every means must be taken of preventing a loss of heat from the house, and thus reducing the need for highly heated pipes.

As the weather improves air must be admitted on all favourable occasions, and the plants frequently damped down as the weather permits. When spikes are developing, the plants should be carefully inspected every day for slugs and snails, which are particularly fond of them. As the flowers expand shade is very essential, and all the ventilators should be opened on bright warm days, so that the house may be kept as cool as possible.

Scale is seldom found on *O. crispum*, but it is a favourite host for thrips, which cause much damage to the flower spikes and disfigure the new growths. Fumigation is generally effectual, care being taken that water is not lodging in the growths, or it may prove a harbour for the thrips until the fumes have passed away. It is advisable to sponge the leaves once or twice a year with some safe insecticide.

Mr. Moody recommends as a potting medium two parts of well-pulled and chopped osmunda fibre, one part of Ai fibre, and one part of perfectly cleaned, cut-up sphagnum moss, with a little charcoal and some broken, half-decayed oak leaves.

 BIFRENARIA BICORNARIA.

A BIFRENARIA has just flowered in the collection of H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood), which proves to be the rare *B. bicornaria*, a species that was described by Reichenbach in 1863 (*Hamb. Gartenz.*, 1863, p. 12), from a specimen which flowered in the collection of Consul Schiller, of Hamburg, and which is said to have been obtained from Brazil. It was described as an ally of *B. aurantiaca*, Lindl. The species seems to have been lost sight of for a considerable time, but in May, 1886, a plant flowered with Mr. John Day, who made a painting of it (*Orch. Draw.*, xxix. t. 91), remarking that it was from a plant sent by Messrs. Hugh Low & Co., of Clapton, at whose nursery they had Prof. Reichenbach's authority for the name, and he added: "I never saw such remarkable lateral lobes to the labellum in any other species of the genus." The fact is, the lip is very strongly three-lobed, and practically spurless, as in *B. aurantiaca*, to which it bears a considerable resemblance in habit. The inflorescence is about a foot high, and the flowers are deep yellow, strongly barred with brown. The side lobes of the lip are almost entirely of the latter colour, and may be described as wedge-shaped, with a crenulate apex. Plants of the species have also flowered with Messrs. Charlesworth & Co., and at Kew.

R.A.R.

MASDEVALLIA RACEMOSA.—The reproduction of a figure of *Masdevallia racemosa* showing a raceme of fifteen flowers recalls a criticism made some years ago (*Woolw. Masdevallia*): "The mistaken idea that each flower-stem of *M. racemosa* produces numerous flowers, expanded at the same time, seems to have originated in the fact that some dried specimens with ten to fourteen flowers carefully arranged upon the dead stalks, were exhibited at the first sale of living plants, in 1883. The number of flowers developed at the same time never exceeds four and rarely exceeds two; among many specimens, both dried and living, I have never seen a stem with more than two open flowers. In Consul Lehmann's descriptions of wild specimens collected by him, he mentions that the flowers appear *in succession*, sometimes as many as eighteen upon one stem." It is a question whether such erroneous blocks would not be better cancelled, for their reproduction without a word of warning is only misleading. Indeed the raceme is said to be "eight to fifteen-flowered," but there is nothing to show that they are not open together, as represented. It may be added that the original of this erroneous figure is now preserved at Kew, but the flowers are not attached to the raceme, as shown in the drawing.—R.A.R.

 ORCHID NOTES AND NEWS.

TWO meetings of the Royal Horticultural Society will be held at the Royal Horticultural Hall, Vincent Square, Westminster, during September, on the 14th and 28th, when the Orchid Committee will meet at the usual hour, 12 o'clock noon.

ORCHID EXHIBITS.—At the meeting held on August 17th, Mr. J. Gurney Fowler announced that the Council had under consideration two new forms of Award, one for hybrids not sufficiently developed to warrant the Award of a First-class Certificate or an Award of Merit, the other for rare species that may not come under the class for which the Scientific Committee now consider Botanical Certificates. Particulars of the names of the Cards and Forms of Entry have not yet been decided upon. Exhibitors will be expected to enter on the forms the fullest information available, and the proposed arrangement should therefore give interesting notes on plants which might otherwise escape notice.

Meetings of the Manchester and North of England Orchid Society will be held at the Coal Exchange, Manchester, on September 2nd and 16th. The Committee meets at noon, and the exhibits are open to the inspection of members and the public from 1 to 4 p.m.

A fine plant of *Miltonia vexillaria* is figured in the issue of our American contemporary, *Horticulture*, for July 11th, with an article on its culture by Mr. M. J. Pope. The species is considered one of the best spray Orchids for either commercial or private use. Mr. Pope remarks that for the last few years he has used nothing but clean live sphagnum moss, which is kept growing, and is replaced with fresh as soon as it shows signs of decay. When actively growing he recommends an application of weak liquid manure about once a week or ten days, which may be increased to double strength as the bulbs begin to swell and the flower-spikes push forth. Feeding is not resorted to at any other time. Mr. Pope has charge of the very interesting private Orchid collection of Mrs. B. B. Tuttle, of Naugatuck, Conn., U.S.A.

At the Annual Show of the North Shore Horticultural Society, Mass., U.S.A., held on August 6th and 7th last, a Silver Medal was awarded to Col. Charles Pfaff for *Epidendrum prismatocarpum*.—*Horticulture*.

CYPRIPEDIUM PAPUANUM, Ridl.—Among the plants collected on Dr. Wollaston's recent expedition to Dutch New Guinea is a *Cypripedium* which is now flowering in the collection of the Hon. N. C. Rothschild,

Ashton Wold, Oundle, and which has been described and figured as *C. papuanum*, Ridl. (*Gard. Chron.*, 1915, ii. p. 131, fig. 43). It was found in bloom in December or January by Mr. C. B. Kloss, the Botanical collector of the expedition, on Mt. Carstenz, at an elevation of 2500 feet. The colour of the flower is described as rather dull crimson tinged with green or greenish yellow. It belongs to the *C. javanicum* set, and appears to be the fourth species known from New Guinea.

SOBRALIA DELLENSIS WITH TWO LIPS.—A plant of *Sobralia dellensis* in the collection of J. Gurney Fowler, Esq., Brackenhurst, Pembury, has the curious habit of persistently producing flowers with two lips. Four stems were shown at the R.H.S. meeting held on August 31st, in which all the flowers showed this character, and it has been constant for the last three years. *S. dellensis* is a hybrid between *S. leucoxantha* and *S. Lowii*, and was raised in the collection of Baron Sir Henry Schröder, The Dell, Englefield Green (*O.R.*, xv. p. 196). The flowers are blush white, with a large amount of yellow on the disc, and a few purple markings in front.—R.A.R.

HYBRID RECORDS.—"It seems curious," sadly writes a correspondent, "that only a very few people care for accuracy now in parentages, &c." We are sure that he does not include us in the remark, and it may be interesting to repeat our own advice of seventeen years ago (*O.R.*, vi. p. 324):—

"Carefully preserve the records of all your crosses. When a seedling flowers, first ascertain if it has not already been named before proceeding to christen it. When satisfied that it is really new, see that the name given is in accordance with rule. If a secondary hybrid, keep it unnamed until satisfied that it is an improvement on existing kinds, or has some distinctive character to recommend it. Lastly, a name being given, have it properly recorded, together with the history of the plant."



ANSWERS TO CORRESPONDENTS.



[Orchids are named and questions answered here as far as possible. Correspondents are requested to give the native country or parentage of plants sent. An ADDRESSED postcard must be sent if a reply by post is desired (abroad, reply postcards should be used). Subjects of special interest will be dealt with in the body of the work].

F.W.T.—*Bifrenaria bicornaria*, Rchb. f.

A.C.—*Cymbidium chloranthum*, Lindl.

Cypripedium.—The rusty patches are old thrip marks. No fungus is present.

J.C.—*Masdevallia xipheres*, Rchb. f. *M. muscosa* is constantly different in its lighter yellow flowers.

W. H.—*Stanhopea Wardii*, Lodd. The other matter is held over.



The Orchid Review

VOL. XXIII.

OCTOBER, 1915.

No. 274.



OUR NOTE BOOK.



THE arrangements for the new certificate for meritorious seedlings announced at page 287 have quickly taken shape, and on September 14th the first "Seedling Commendation," as the new certificate is to be called, was given to *Cattleya Ashtoniæ alba*, a very promising seedling derived from *C. O'Brieniana alba* and *C. Dusseldorffii Undine*, and bearing a single white flower in which the characters of the parents are well combined. The need of such a certificate has long been felt, for it is well known that seedling Orchids have rarely reached their full development at their first time of flowering, yet many of them are so interesting as to be exhibited at the first opportunity, and in the past the alternative has been either to pass them over or to give a certificate to which they are not yet entitled, though neither alternative has been felt to be quite satisfactory. The Certificate of Appreciation, which was a personal matter, and not given to the plant itself, did not meet the case. The new certificate provides a way out of the difficulty, but we must express the hope that it will be made a condition of its award that full particulars of parentage be given in all cases.

Whether the other proposed certificate, for rare species that may not come under the class for which a Botanical Certificate is now awarded, will work out in the same satisfactory way remains to be seen, but there are many very interesting and even fascinating little Orchids that are not adapted for general culture for decorative purposes, and it is desirable that their culture may be encouraged. The Botanical Certificate answered its purpose in a way, for it was sometimes given to such interesting plants, but the idea that it was only given to plants not worthy of general cultivation tended to discourage it, and its transfer to the Scientific Committee has practically abolished its use, at all events as a means of encouraging the culture of a very interesting class of Orchids, which we know are still largely grown, but are not exhibited to the extent they might be if some

definite mark of recognition were extended to them. This is the idea behind the proposal, and we hope to see it take an equally practical form.

Two papers on the subject of Evolution, by Prof. G. Henslow, appear in the last issue of the *Journal of the Royal Horticultural Society*. They are entitled "The Passing of Darwinism" and "Darwin's Alternative Explanation of Evolution." In the first we are told: "Darwinism, or the Theory of the Origin of Species by means of Natural Selection, has held its ground for fifty-five years. But it is destined to pass away, though the struggle for existence and the survival of the fittest, upon which the theory was based, will continue, presumably, amongst living organisms, as long as the world shall exist. The theory itself cannot last." We now turn over seven pages, and we read: "I shall show how Darwin's alternative explanation—for it is no theory—has proved to be the right and only way by which Nature originates new varieties and species." But if the explanation is "right," and even if "Evolution is now based on far securer grounds than Darwin could realise in the fifties," what becomes of the phrase "The Passing of Darwinism?"

We are told that "Injurious variations do not occur in Nature"; that it is a "groundless assumption," to which may be added the fact that "the theory ignores any natural law governing the appearance of new variations possessing adaptations to the new conditions of life." But we do not so read it. Darwin pointed out that "the modified offspring of all dominant and increasing forms tend to become adapted to many and diversified places in the economy of Nature." This is admitted, but the lecturer adds: "It is remarkable that we read nothing more about adaptation in the *Origin*, &c., 1st to 6th ed. . . . The word does not occur in the Index." He should turn to page 101 of edition 6, where Darwin remarks, in answer to an objection of Hewett C. Watson: "It seems probable that a sufficient number of species would become adapted to all considerable diversities of heat, moisture, &c." This is surely definite enough.

And in his fascinating work, the *Fertilisation of Orchids*, there is a wealth of allusion to adaptation. We read: "It has, I think, been shown that the Orchideæ exhibit an almost endless diversity of beautiful adaptations. When this or that part has been spoken of as adapted for some special purpose, it must not be supposed that it was originally always formed for this sole purpose. The regular course of events seems to be that a part which originally served for one purpose becomes adapted by slow changes for widely different purposes" (ed. 2, p. 282). Again: "The more I study nature, the more I become impressed, with ever-increasing force, that

the contrivances and beautiful adaptations slowly acquired through each part occasionally varying in a slight degree but in many ways, with the preservation of those variations which were beneficial to the organism under complex and every-varying conditions of life, transcend in an incomparable manner the contrivances and adaptations which the most fertile imagination of man could invent" (p. 285).

And concerning natural selection itself we read: "In my examination of Orchids, hardly any fact has struck me so much as the endless diversities of structure—the prodigality of resources—for gaining the very same end, namely, the fertilisation of one flower by pollen from another plant. This fact is to a large extent intelligible on the principle of natural selection. As all the parts of a flower are co-ordinated, if slight variations in any one part were preserved, from being beneficial to the plant, then the other parts would generally have to be modified in some corresponding manner. But these latter parts might not vary at all, or they might not vary in a fitting manner, and these other variations, whatever their nature might be, which tended to bring all the parts into more harmonious action with one another, would be preserved by natural selection (p. 284).

"Thrice happy the Orchid that has its name well chosen!" The phrase will serve to round off another of the inevitable little discussions on nomenclature that prevent us from stagnating. The Law of Priority is the subject on this occasion, and the objection urged against it is that it secures the perpetuity of every absurd and erroneous name that may be imposed upon the most inoffensive of Orchids. Were the law insisted upon in all cases, regardless of consequences—and some would go as far as this—we should be inclined to agree, but a loophole of escape is provided in the rules, inasmuch as it is permissible to correct undoubted mistakes. The question is how far should this proviso extend? We shall not soon forget a reply that we once received when we informed a correspondent that a *Stanhopea* sent for determination was *S. inodora*, Lindl. We knew that the flowers were fragrant, and the mistake was Lindley's in imposing such an erroneous name. The question arises whether correction is not permissible in such a case. There is a precedent, for Lindley also named a *Bifrenaria inodora*, which, unfortunately, has very fragrant flowers, and Barbosa Rodrigues deliberately re-named it *B. fragrans*. Reichenbach, too, when he was informed that a *Habenaria* which he had called *H. pusilla*—it was described from dried specimens—had a lip as brilliant as a soldier's jacket, promptly re-named it *H. militaris*, and no law of priority should be allowed to rescue so inappropriate a name as *H. pusilla* from oblivion.

The fact is the Law of Priority is only one of several rules that have been imposed for the purpose of securing an orderly nomenclature, which must be applied together in order to be effective, and it is the adoption of one rule while ignoring the others that makes all the mischief. Clearness and brevity are the first objects of a rational nomenclature, and ever since the time of Linnæus the rule has been that specific names should consist of a single word. Of course it did not prevent synonymy arising, and with this came the practice of selecting what was considered the best name, and sometimes of substituting a new one that was thought to be more suitable. This led to protests, and in course of time the Rule of Priority was added. It has always been a vexed point as to how far the rule should be applied, and the climax came when it was extended to names that are not in accordance with other rules. The difficulty arises from the fact that some people apply the rule to everything, not even excluding specific names consisting of as many as six words, or of an unspecified number of syllables, while others refuse to apply it at all. At all events they say it should never be used to preserve ugly names, or to displace those that are suitable, and this is the view taken by our correspondent.

But this is treading on dangerous ground, for when once the principle is admitted one never knows where to stop. The name *Læliocattleya luminosa* is so admirably descriptive that one cannot help wishing the plant had never been called *L.-c. Truffautiana*. As to which was the earlier name, see page 252 of our tenth volume.

ANGULOA BREVILABRIS, Rolfe.—At the last Holland House Show an *Anguloa* that had been imported with *A. Cliftonii* was exhibited by Messrs. Sander & Sons, St. Albans, under the name of *A. Ruckeri*, together with a natural hybrid that appeared in the same importation (see p. 243). A plant from this importation has flowered in the collection of Walter Cobb, Esq., Normanhurst, Rusper, which proves to be very different from *A. Ruckeri* in the shape of the lip, and Messrs. Sander believe that the one they exhibited is identical. The same thing, labelled *A. Ruckeri*, also occurs in the collection of Consul Lehmann, and is localised as collected in September, 1891, between Cativo and Buritica, Western Andes of Antioquia, at 1,400 to 1,600 mètres altitude (n. 7235). On soaking out a flower the lip is seen to be identical in structure. The flower bears such a resemblance to *A. Ruckeri* that the difference was not noticed until looking inside and seeing the very different lip, this being about half as long as in *A. Ruckeri*, and having very broad truncate side lobes, and a small oblong fleshy front lobe. The parentage of the natural hybrid, *Anguloa Rolfei*, Sander (p. 255), now requires to be amended to *A. Cliftonii* × *brevilabris*.—R.A.R.

 THE ORCHID STUD-BOOK.

THE hybrids of the sub-tribe *Oncidiæ* supplementary to the *Orchid Stud-Book* were dealt with in our nineteenth volume, and as the *Odontiodas* that have appeared since were given in the present volume (pp. 97-100, 134) it may be useful now to enumerate the remaining genera in the same way.

ADIODA.

A genus established to contain the hybrids between *Ada* and *Cochlioda*.

A. ST. FUSCIEN (*A. aurantica* × *C. Noetzliana*), *O.R.*, 1911, p. 278.—H. Graire, Aug., 1911.

ADOGLOSSUM.

A genus established to contain the hybrids between *Ada* and *Odontoglossum*.

A. JUNO (*A. aurantiaca* × *O. Edwardii*), *O.R.*, 1913, p. 319.—J. & A. McBean, Sept., 1913.

MILTONIA (continued from *O.R.*, xix. p. 74).

M. CHARLESWORTHII (*Hyeana* × *vexillaria*), *O.R.*, 1913, pp. 218, 313, fig. 60.—Charlesworth & Co., May, 1913.

M. ISABEL-SANDER (*Roezlii* × *Hyeana*), *O.R.*, 1914, p. 190.—Sander & Sons, May, 1914.

M. SANDERÆ (*St. Andre* × *vexillaria*), *O.R.*, 1913, pp. 246, 256, fig. 56.—Sander & Sons, July, 1913.

MILTONIODA (continued from *O.R.*, xix. p. 74).

M. COOPERI (*C. Noetzliana* × *M. Warscewiczii*), *O.R.*, 1913, pp. 232, 244.—Sander & Sons, June, 1913.

ODONTOCIDIUM.

A genus established to contain the hybrids between *Odontoglossum* and *Oncidium*.

O. EDWARDATUM (*Odm. Edwardii* × *Onc. serratum*), *O.R.*, 1913, p. 189.—T. Pauwels & Cie., April, 1913.

O. FOWLERIANUM (*Odm. cirrhosum* × *Onc. Forbesii*), *O.R.*, 1911, pp. 353, 365.—J. Gurney Fowler, Nov. 1911.

ODONTONIA (continued from *O.R.*, xix. p. 74).

O. BRUGENSIS (*M. vexillaria* × *O. Edwardii*), *O.R.*, 1913, pp. 180, 213.—Sander & Sons, May, 1913.

O. Guillaume Olyff, *Rev. Hort. Belge.*, 1914, p. 137, tab.—Duchesne & Watermael.

O. CHARLESWORTHII (*M. vexillaria* × *O. Uroskinnei*), *O.R.*, 1914, pp. 60, 107, fig. 45.—Charlesworth & Co., July, 1914.

O. CHOLLETH (*M. vexillaria* × *O. Harryanum*), *O.R.*, 1913, p. 177, fig. 34.—Sander & Sons, 1913.

O. CLEVERLEYANA (*M. vexillaria* *Leopoldii* × *O. Rolfeæ*), *J. S. H. Fr.*, 1913, pp. 556, 659.—*O. Fanyau*, Sept., 1913.

O. CYBELE (*M. candida* × *O. cirrhosum*), *O.R.*, 1913, p. 127, 167.—Charlesworth & Co., March, 1913.

O. DECORA (*M. Warscewiczii* × *O. Adrianæ*), *O.R.*, 1912, p. 196.—Sander & Sons, May, 1912.

O. FARNESIANA (*M. Warscewiczii* × *O. Edwardii*), *O.R.*, 1913, p. 288.—Sander & Sons, Aug., 1913.

O. FIRMINII (*M. vexillaria* × *O. crispum*), *O.R.*, 1912, p. 287.—*F. Lambeau*, Jan., 1912.

O. KAFFIR-QUEEN (*M. Warscewiczii* × *O. harvengtense*), *O.W.*, v. p. 272.—*H. T. Pitt*, Aug., 1915.

O. LÆLIA-SANDER (*M. Warscewiczii* × *O. amabile*), *O.R.*, 1912, p. 196.—Sander & Sons, May, 1912.

O. LONGOWOYI (*M. Schröderiana* × *O. Uroskinnei*), *O.R.*, 1914, p. 26.—Charlesworth & Co., Dec., 1913.

O. LOUISE (*M. Warscewiczii* × *O. Ossulstonii*), *O.R.*, 1911, p. 277.—Charlesworth & Co., Aug. 1911.

O. LUCILIA (*M. spectabilis* × *O. cirrhosum*), *O.R.*, 1914, p. 95.—Charlesworth & Co., Feb., 1914.

O. MAGALI-SANDER (*M. Warscewiczii* × *O. armainvillierense*), *O.R.*, 1913, p. 244.—Sander & Sons, July, 1913.

O. McNABIANA (*M. Bleuana* × *O. Edwardi*), *O.R.*, 1913, p. 322.—Sander & Sons, Sept., 1913.

O. ORNATA (*M. Warscewiczii* × *O. Wilckeanum*), *O.R.*, 1912, p. 196.—Sander & Sons, May, 1912.

O. Edna, *O.R.*, 1912, pp. 250, 319.—Charlesworth & Co., July, 1912.

O. ROGER-SANDER (*M. Warscewiczii* × *O. percultum*), *O.R.*, 1912, p. 196.—Sander & Sons, May, 1912.

ONCIDIODA (continued from *O.R.*, xix. p. 74).

O. BELLA (*C. Noëtzliana* × *O. Marshallianum*), *O.R.*, 1913, p. 234.—Charlesworth & Co., June, 1913.

O. CINNABARINA (*C. Noëtzliana* × *O. monachicum*), *O.R.*, 1912, p. 276.—Charlesworth & Co., Aug., 1912.

O. COOKSONIÆ (*C. Noëtzliana* × *O. macranthum*), *O.R.*, Aug., 1912, p. 272.—*Mrs. Norman Cookson*, Aug., 1912.

O. MAJORIE (*C. Noëtzliana* × *O. Forbesii*), *O.R.*, 1913, pp. 31, 39.—Charlesworth & Co., Nov., 1912.

O. MAURICEI (*C. vulcanica* × *O. tigrinum*), *O.R.*, 1914, pp. 180, 190.—*H. Graire*, May, 1914.

C. PENELOPE.—The *Oncidium* parent was inadvertently given in *O.R.*, xix. 74, as *O. incurvum*. It should be corrected to *O. leucochilum*.

O. WALTONIENSIS (*C. vulcanica* × *O. incurvum*), *O.R.*, 1915, p. 157.—W. Thompson, Feb., 1915.

ONCIDIUM (continued from *O.R.*, xix. p. 75).

O. McBEANIANUM (*macranthum* × *superbiens*), *O.R.*, 1913, p. 219.—J. & A. McBean, May, 1913.

VUYLSTEKEARA (see *O.R.*, xix. p. 75).

A genus established to contain the hybrids between *Cochlioda*, *Miltonia*, and *Odontoglossum*.

V. HYEANA (*C. Noetzliana* × *Odontioda Lairesseæ*), *O.R.*, 1912, pp. 171, 258.—J. Hye de Crom, May, 1912.

The original *V. insignis* (*O.R.*, xix. pp. 60, 75) was based on an erroneous record, and has been cancelled, as it proved to be synonymous with *Miltonioda Harwoodii* (see *O.R.*, xix. p. 171). R.A.R.

CATASETUM PILEATUM.

THIS striking *Catasetum*, probably the finest species in the genus, has become very rare of late years, and it was interesting to see a fine plant of it, from the collection of Sir Jeremiah Colman, Bart., at the R.H.S. meeting held on August 31st last. It bore a spike of nine ivory white flowers, and was awarded a First-class Certificate. It may be interesting to recall the history of the species. *Catasetum pileatum* was described in 1882 (*Rchb. f. in Gard. Chron.*, 1882, i. p. 492), from dried materials sent by Messrs. Linden, Brussels, which were said to have been obtained from Venezuela. The specific name was given in allusion to its exceptionally broad, cap-shaped lip. Further materials were sent four years later, and a second note appeared (*l.c.*, 1886, ii. p. 616), in which its striking resemblance to *Mormodes luxatum* was pointed out.

In 1886 a *Catasetum* was described and figured under the name of *C. Bungerothii* (*N.E.Br. in Lindenia*, ii. p. 21, t. 57), being based on a drawing sent to Messrs. Linden by their collector Bungeroth. On December 13th of that year plants were sold at Stevens' Rooms by Messrs. Linden, when a living plant, bearing a spike of seven flowers, was shown. This plant passed into the collection of Baron Schröder, and the best plant is said to have realised fifty guineas. Shortly afterwards a plant flowered in the collection of F. G. Tautz, Esq., Studley House, Hammersmith, of which a figure appeared (*Gard. Chron.*, 1887, i. pp. 139, 143, fig. 32, and suppl. fig.), and in August following a plant was exhibited by Baron Schröder at a meeting of the R.H.S., and received a First-class Certificate.

C. pileatum and *C. Bungerothii* were connected together when the species was subsequently figured in *Reichenbachia* under the former name (ser. i, ii. p. 90, t. 91. It was remarked: "A glance at the cap-like male flowers will show how singularly appropriate and descriptive is the name 'pileatum' which Reichenbach selected. There is no doubt that he was perfectly aware of his *C. pileatum* being the same as Mr. Brown's *C. Bungerothii*, for in a letter to us, dated Aug. 8th, 1887, he wrote: 'Baron Schröder has sent me, through Ballantine, an enormous spike of *Catasetum pileatum*'; and this was from the plant bought by the Baron in Stevens' auction rooms as *C. Bungerothii*. According to the laws of botanical nomenclature, therefore, *Catasetum pileatum* is the correct name for the plant known as *C. Bungerothii*, on account of its description having been published some years previous to that of the latter. This is an instance where we are made to feel very keenly the act of Reichenbach in locking up his herbarium for twenty-five years to prevent reference to his specimens."

This identification led to a discussion (*Gard. Chron.*, 1890, i. p. 618), in which M. L. Linden admitted having received the identification from Reichenbach, and remarked that although he did not remember what *Catasetum* he had sent, still he thought it could not have been anything so fine as *C. Bungerothii*, though the reference to *Mormodes luxatum* indicated a resemblance. The Editor then reviewed the history of the two plants, and added: "We, or our successors, can well afford to wait patiently till the Professor's herbarium is unlocked a quarter of a century hence to ascertain for certain what it was that M. Linden sent to him." For our part we think the evidence conclusive, and we have retained the original name.

It is remarkable that so fine a species was not recorded before, for in 1889 it was recorded that it was collected by Spruce over thirty years earlier, and that a specimen had laid unrecognised and unnamed at Kew, though not in its correct genus, since the Spruce collections were received there (Rolfe, in *Gard. Chron.*, 1889, ii. p. 466). The late Mr. E. S. Rand, of Para, also wrote to us in October, 1891, remarking: "Did I ever tell you that I had *C. Bungerothii* long before Bungeroth discovered it? My plant did not bloom for a long while; when it did I found it was new, and sent half of it to Linden. It was the yellow variety figured last year as var. *Randii* (*Ill. Hort.*, xxxvii. p. 117, t. 117). Meanwhile Bungeroth had sent the white to Linden, and that became the type. The plant is Amazonian. The white is from Venezuela, and has been long known in Trinidad."

Other varieties are known, but a note on these and on the appearance of the female flowers is deferred.

R.A.R.

RENANTHERA STORIEI.

A NOTE on the flowering at Kew of a fine specimen of the handsome *Renanthera Storiei* appeared at page 279 of our last issue, and now, through the courtesy of the Editor of *The Garden*, we are able to give a



Fig. 38. RENANTHERA STORIEI.

portrait of the actual plant. The species is a native of the Philippine Islands, and was described in 1880 from dried materials collected by Mr. James D. Storie, which were sent to Reichenbach by Mr. Stuart Low (*Gard. Chron.*, 1880, ii. p. 296). It was described as: "A new Philippine *Renanthera*, just matching, or rather surpassing, the celebrated *R.*

coccinea." About a year later, a further note by Reichenbach appeared (*Gard. Chron.*, 1881, ii. p. 364): "I have just obtained beautiful materials of this from Mr. Henry T. Brown, who found the species six months ago on a small island when on an excursion from his residence, Tayabas, Philippine Islands—a pencil sketch, dried flowers, flowers in spirit, a sketch in colours, and living plants, five feet long, have been supplied to me." Mr. Brown described it as follows: "It grows about ten to twelve feet high, with distichous, dark green, and somewhat fleshy leaves, about eight to ten inches long and $1\frac{1}{2}$ inch broad; inflorescence fairly long, branching, and bearing fifty to sixty flowers, which are more than two inches across; dorsal sepal and petals dark orange, lower sepals broad, and of a most brilliant velvet-crimson, with lighter shades of the same colour; lip small, deep crimson, with small yellow bars, centre white."

The earliest record of its flowering in Europe that we know of is September, 1894, when a plant bloomed with Messrs. B. S. Williams & Son at the Victoria and Paradise Nurseries, Upper Holloway, and was figured in the *Orchid Album* (xi. t. 513). In June, 1896, another flowered with Sir Trevor Lawrence, Bart., at Burford, and was figured in the *Botanical Magazine* (t. 7537). The Kew plant is about five feet high, and its general character is shown in the figure, which is about one-fourth natural size. The colour we should describe as orange-red, with large crimson blotches on the lateral sepals, these being well-shown in the figure. It may be added that in July, 1903, a plant flowered at Kew, and another in the collection of J. Gurney Fowler, Esq., at Glebelands, S. Woodford, the latter being exhibited at a meeting of the R.H.S. (*O.R.*, xi. pp. 231, 243). It is a very brilliantly-coloured thing, but, like *R. coccinea*, does not seem inclined to flower until the plant reaches a good size. It requires a light position in the Warm house, with adequate shading during bright weather.

It may be added that the species was also collected in 1882, by Burke, when travelling in the Philippines for Messrs. James Veitch & Sons, and later by Loher, the localities being unspecified, while more recently it has been collected at the Lamo River, in the province of Bataan, by Whitford.

R.A.R.

CROSS-FERTILISATION.—"The fact is that there has been continual cross-fertilisation of science. The those who remind us that Hertz, for instance, stood on the shoulders Fitzgerald, it may be answered of Mended that Bateson stands on the shoulders of Mendel; and both statements would be ridiculously far off adequate accuracy."—*China Mail*.

Punch, to whom we are indebted for the extract, adds: "We agree." "It looks rather like cross-fertilisation of Mendelism," suggests a DISTRACTED CORRESPONDENT.

 CALENDAR OF OPERATIONS FOR OCTOBER.

By W. H. WHITE, for many years Orchid Grower to the
late Sir Trevor Lawrence, Bart., K.C.V.O.

TEMPERATURES, &c.—At this time of year it is important for the Orchid grower who is in charge of the heating apparatus to keep a sharp look-out for sudden falls in the temperature of the external air, so that all evil effects to the plants from this cause may be avoided. It is no uncommon occurrence during October for moderately sharp morning frosts to make a sudden appearance, and consequently without the slightest warning. In such cases the temperature of the various divisions may fall a few degrees below their proper standard, unless the man in charge of the fires the previous evening had been sufficiently weatherwise to foresee what was coming. On such occasions, when the temperatures are low, no watering or damping down should be proceeded with before the proper degree of warmth is reached, as the drier the houses are under such circumstances the better, and the less likelihood will there be of serious injury to the plants. The temperature of the East Indian, or warmest house, at night, should be about 70° , that of the Cattleya house about 65° , and the Mexican or Intermediate house a few degrees less. The Odontoglossum house should be about 55° or 57° at night, and about 50° or 54° in the morning. When banking up the fires the last thing at night the one in charge of the heating apparatus should so manipulate the dampers that there may be a fall of several degrees in each division by the early morning hours.

During the month of October, following so closely, as it so often does, upon warm summer weather, it is advisable in every department to err a trifle on the warm side with the night temperatures, as one sudden fall of several degrees, especially if the plants have been very recently watered, and the atmosphere has been unduly moist, might do more harm to many tender-growing plants than all the cold of winter. Even if the Cool house through the night is a few degrees above the normal temperature, no harm will accrue, provided the ventilators on all suitable occasions are freely used, and the little extra fire heat, and increased ventilation, will often prevent the unsightly dark fungoid growth so frequently seen on the undersides of the foliage of *Odontoglossum crispum*, and its allied species and varieties. It is advisable to see that none of the plants are too near the roof glass, as that is a frequent cause of their being chilled. Thoroughly cleanse the plants of all insect pests before winter sets in, both by sponging and by vapourising each house every week or two with some safe and effective insecticide.

ODONTOGLOSSUM HOUSE.—Look carefully over the newly-potted plants

of *Odontoglossum*, *Masdevallia*, and the many other species and varieties in the Cool house every evening and early morning, in order to entrap any slugs that may have been brought in with the sphagnum moss used in the potting compost. To the same end use as traps some young lettuce leaves, pieces of potato, carrot, apple, &c., which are always useful. No trouble must be spared in this matter, especially at this season, otherwise these pests will soon increase and give considerable trouble and vexation when the flower spikes appear, and probably infest more valuable plants.

CATASETUMS, &c.—Plants of *Catasetum*, *Mormodes*, and *Cycnoches* that have gone out of bloom, or have completed their growth without producing flower spikes, should now be removed from the East Indian house to a very light position in the Mexican house, or a warm unshaded Vinery, direct sunshine being necessary to harden and mature the latest-made pseudobulbs. While these plants retain their foliage in a fresh green condition they will need water occasionally, but so soon as they change colour and fall off, very little or no water will be needed. Strong, well-matured plants will need no water for several months unless undue shrivelling of the pseudobulbs occur. Badly-ripened growths, on the contrary, require water once a week or every fortnight, in order to preserve them in a plump state. Some of these plants, after producing their first flower spikes, if strong, frequently send out others a few weeks later, but these later spikes it is advisable to pinch off, to prevent the new pseudobulbs being weakened and retarded in their completion. Many of these plants are very fine objects when in flower, and all are extremely interesting. To keep them in good health for any length of time it is necessary first to give them a generous-growing treatment, then a thorough ripening of the new growth, and afterwards a long decided rest.

THUNIAS.—These plants are still retaining their foliage and, being in a dry atmosphere and in full sunlight, are apt to be infected with red spider. When this is the case, the leaves and stems should be thoroughly cleansed, or these destructive pests will spread. Lay each plant down on its side, and well syringe the undersides of the leaves with a strong solution of soft soapy warm water, and if badly infested add some safe insecticide. Allow the solution to remain on till quite dry, and afterwards well syringe the plants with clear tepid rain water. After the leaves have fallen cut out the old and decayed stems, and tie up the newly-made one to neat stakes, and until growth recommences keep the plants quite dry at the root, and in a cool dry place. A corner of the potting shed will often answer for this purpose.

PHALÆNOPSIS.—By this time some of the *Phalænopsis*, as *P. Aphrodite*, *Schilleriana*, *amabilis*, *Stuartiana*, *Sanderiana*, *leucorrhoda*, and *casta* will have finished making their leaves, and from this time great care is needed

in watering. During the growing season the sphagnum moss on the surface has been kept green and in a growing condition by frequent supplies of water, but it should now be allowed to become quite dry before water is given. During the autumn and winter months it is not advisable to dip the plants into water, but merely to sprinkle the surface of the moss, and around the sides of the basket occasionally, using a sprayer or fine rose watering-can for the purpose. Allow no water to remain on the foliage or in the centre of the plants. Any failure to attend to these details may lead to spotting of the leaves. Such green-leaved species as *P. violacea*, *Luddemanniana*, *tetraspis*, *sumatrana*, *speciosa*, &c., are still growing, but at this season they must not be kept saturated at the roots for long together. Sponge the plants over occasionally, especially if any gummy exudation appears, as it often does at this time of the year.

DENDROBIUMS.—Plants of such *Dendrobiums* as *D. thyrsiflorum*, *densiflorum*, *Schroederi*, and *Farmeri*, that have finished up their growth, should now be removed from their growing quarters to a more cool and airy atmosphere. If any of these plants have started again into growth, place them in a light position in the warmest house until it is completed, for as the plants of this section grow very rapidly there will be time to get these late growths ripened. So soon as plants of *D. ochreatum* (*Cambridgeanum*) which are now dormant in the Vinery or resting-house, recommence to grow they may be placed in the Intermediate or Cool house, where they may be kept till the young breaks have grown enough to show prominently their flower buds, when they may be removed to a slightly warmer temperature. From the moment this plant commences to grow, afford it good growing treatment, for no amount of drying or ripening after this will induce it to flower.

AERIDES, &c.—Many of the spring and early summer flowering *Aërides*, *Angræcums*, and *Saccolabiums* will by the end of this month have passed their growing season; and although these distichous and evergreen plants never really stop growing, they require, in a great measure, to be treated as resting plants, more particularly as regards affording water at the roots, which must be given only just often enough to prevent loss of foliage. All through the summer months the moss on the surface of the pots has been kept fresh and green, owing to the frequent waterings given, but now, or rather in a few weeks time, the surface moss must be allowed to become of a whitish green colour before water is given, and then the quantity must be considerably reduced. The cooler-growing *Aërides*, as *A. Schroederi* (figured at page 256), *crispum*, *Lindleyanum*, *crassifolium* and *Warneri* have up to the present time only made up half their growth, and for some time should be kept moderately moist at the root. These fine Orchids are generally grown in too much heat, and insufficient ventilation,

in reality they need a very airy position, such as may be found in the Cattleya house. They should be kept well shaded, and they appear to enjoy the sun-heated temperature, but fire heat to any great extent quickly brings them into a debilitated condition.

VANDAS.—Unfortunately there is no pecuniary value in these handsome plants, and they are not generally cultivated, but to those who do grow and appreciate them the following may prove useful. The end of October or the beginning of November, when the sun has lost its power for harm, is the best time of the year to overhaul Vandas of the *V. tricolor* and *V. suavis* section. At this time the plants commence to root freely, and continue to do so all through the winter, so that the foliage will suffer less than were the work deferred until the spring. It is not advisable or necessary, if they are well furnished with leaves, to disturb these plants by repotting, unless a larger receptacle is needed, but if a plant must be repotted because of loss of leaves at the base, the old materials and drainage should be removed, and if there be found plenty of live roots some distance up the stem, so much of the lower part of it may be removed as will bring the lowest pair of leaves, when the plant is again placed in the pot, almost down to the rim. After cutting the base of the old stem away, place the plant in the centre of the pot, and then a few large crocks at the bottom, and upon these a layer of sphagnum moss, over which spread the lowermost roots, and carefully work in amongst them some clean crocks and rough but clean sphagnum moss, pressing it down firmly, then distribute more roots in a like manner, till the top of the pot is reached, finally finishing off with a surface of clean picked sphagnum moss. It is important that each stem be made secure, by tying it to a strong neat stick. Plants that do not require repotting may have their surface of moss top-dressed if necessary. After repotting or top-dressing the plants no water should be afforded for nearly a week, and then water thoroughly, and afterwards, whenever the moss on the surface appears dry, it will suffice to lightly sprinkle it. For this purpose a fine sprayer is always useful, so as to encourage the moss to grow. When new roots begin to push out from the stem, and young roots appear from the old ones, the quantity of water may be gradually increased, but the moss must never be kept in a saturated state, it being preferable to keep the surroundings moist by damping between the pots and under the staging several times daily. These Vandas require a somewhat cool intermediate temperature. I have always found them to grow and bloom extremely well when staged by themselves at one end of a Cattleya house. The plants require to be well shaded from strong sunshine, particularly after any disturbance of the roots, also again during the early spring months.

EPIDENDRUM RADICANS.—When well-cultivated and its requirements

are properly understood, this long scandent-growing species can be made to flower in a comparatively dwarf state, which makes it extremely useful for exhibition and decorative purposes generally, its brilliant red trusses of bloom being always very effective. Plants of these species that have made strong growth during the past season should now have the young shoots cut off in lengths of about two feet, so that when repotted about eighteen inches of the stem will be above the level of the rim of the pot. It is not advisable to grow the stems singly in pots, as they would take up too much valuable room, it being preferable to put four, five, or six of the strongest pieces in a 32-sized pot, tying each stem to tall neat stakes to keep them in position. Almost any kind of light material will suit them to root in, but, chiefly for appearance sake, living sphagnum moss should predominate, and, when repotting, as many of the lower aerial roots should be placed in the pot as possible. Grow the pots in the Cattleya or Mexican house, and elevate them to within a foot of the roof glass, so as to keep them as dwarf as possible. After doing them up as described, give them a thorough watering; no more water will then be needed through the compost, as by spraying the growths and aerial roots every day the compost will be kept sufficiently moist.

EPIPHRONITES VEITCHII.—This lovely hybrid is a cross between *Epidendrum radicans* and *Sophronitis grandiflora*, and may be treated almost in the same way as *E. radicans*, but being a dwarf-growing plant it prefers a light airy position in the Cattleya house. Take off as many of the young pieces as possible, and insert them in a mixture of osmunda fibre and sphagnum moss, three parts of moss to one of fibre, cutting both materials up moderately fine, and mixing them well-together. Well-drained shallow teak wood baskets are quite suitable. Baskets of six inches diameter will take about fifteen or twenty stems. These small pieces soon become established if sprayed over lightly two or three times daily when the weather is bright, but in dull cold weather a morning spray is quite sufficient. Should red spider persistently attack the leaves, cleanse them as advised for the *Thunias*, and if thrips are seen remove the plants to any house that is being vaporised.

SOPHRONITIS GRANDIFLORA.—This beautiful species grows well in the Cool house, and the plants should now be kept well supplied with water until the flowering season is past and growth is completed. Elevate these small growing plants well up to the light, so as to afford both growth and flower buds every encouragement. Many beautiful and interesting hybrids have been obtained from *S. grandiflora* crossed with other species, and the hybrids thus raised are nearly all of rich colouring, and being possessed of free-flowering qualities are highly appreciated in most collections. Where a number of these hybrids are grown there will be nearly always some of

them in bloom. At the present time *Sophrocattleya Chamberlainiana*, *Calypso*, *Nydia*, *eximia*, *Sophrolælia heatonensis*, *Marriottiana*, and *Eros* have their flowers open ; others being in full growth their flower buds can easily be discerned pushing up in conjunction with the new shoots. They thrive best when suspended near to the roof glass on the lightest side of the Intermediate house, where the moderate sunlight tends to intensify the colour of the flowers. Keep these plants well supplied with water till the new growths are made up.

ONCIDIUMS.—The useful Brazilian *Oncidiums*, *O. Forbesii*, *crispum*, and *varicosum* are now making roots freely and sending up their flower spikes. Strong well-rooted plants may be allowed to carry their full complement of bloom, but it is advisable that those plants that produced exceptionally strong spikes last year, and small weakly plants, should have their flower spikes removed. Every grower who has had any experience with this class of *Oncidium* knows what fine spikes can be easily obtained from them within a few months after being imported, and they also know that in many cases, after bearing such spikes and keeping them for a long time on the plant, the plants eventually have gradually dwindled away, in spite of every care bestowed upon them. Therefore, to keep the plants in good health, it is advisable to cut off the spikes soon after the flowers are open, and afterwards to give them a good rest, not allowing them to bloom again till they have recovered and made good bulbs. *O. concolor* will by this time have made up its bulbs, and will not need anything like so much water as when growing, but it must not be treated quite decidedly as a resting plant.

ORCHIS LATIFOLIA.—A colony of about twenty plants of this beautiful native *Orchis*, as grown in the Royal Horticultural Society's garden at Wisley, is illustrated in a recent issue of *The Garden* (p. 438). It is remarked : " It would be difficult indeed to find a plant more interesting or possessing more charm than this, and owing to its preference for damp, marshy spots it is essentially a plant for the waterside. . . . The roots were planted a little over three years ago in a damp peaty spot with a north-west exposure, and the magnificent flower-spikes testify to the success of the treatment. The spikes, when the photograph was taken early in July, were about eighteen inches high, the bright purple flowers creating a welcome bit of colour amid the deep green foliage of surrounding vegetation. It has proved a variable plant under cultivation, but for the waterside in semi-wild places the native plant is best. As most nurserymen have stocks of this *Orchis*, there is no difficulty in obtaining plants and no excuse for rooting up wild ones for transference to the garden."

OBITUARY.

F W. HARVEY.—We learn with deep regret of the death, on August 31st, of Mr. F. W. Harvey, Editor of *The Garden*, at the early age of 33 years, after an operation for abscess on the brain. Our contemporary remarks: "Mr. Harvey had been ailing slightly for a few days, when his illness was diagnosed as an abscess on the brain. An immediate operation



Fig. 39. THE LATE MR. F. W. HARVEY.

was necessary, from which he did not long rally, and he succumbed a week later, on Tuesday, August 31st. . . . We feel sure that our readers and Mr. Harvey's innumerable friends in the horticultural world will echo our feelings of sincere regret at his untimely end. He was a most lovable, upright, and conscientious man, and with his death a deal of valuable knowledge goes out of the world." Mr. Harvey was a native of Stebbing, Essex, and commenced his horticultural career with Mr. Philpott, a seed and fruit grower, and during this time he attended the classes in horticulture of the County Technical Laboratories at Chelmsford. He was then selected as under gardener at the Experimental Garden there, where

he spent about four years, afterwards going to Kew for two years to gain a wider experience of plant life. In July, 1895, he was then appointed sub-editor of *The Gardener*, and afterwards joined the staff of *The Garden* in the same capacity, under the late Mr. E. T. Cook, becoming Editor about four years ago, when Mr. Cook went to America. Mr. Harvey was the author of several horticultural works. He was also a member of the Floral Committee of the R.H.S., of the Council of the National Rose and National Sweet Pea Societies, and of the Committee of the Kew Guild. He was interred at Romford, Essex, on September 4th, when a large number of horticultural friends were present to pay their last tribute of respect to a worthy colleague. Many beautiful wreaths were also sent. Mr. Harvey leaves a widow and one son to mourn his loss. For the excellent portrait of Mr. Harvey we are indebted to the courtesy of *The Garden*.

EDWIN LONSDALE.—From an Obituary notice of this well-known American horticulturist, cited from the *American Florist* by the *Gardeners' Chronicle*, we learn that deceased was an old British horticulturist who settled in America in 1869, and in 1875 started a nursery at Germanstown, where, in addition to growing roses and other flowers for the Philadelphia market, he also devoted himself to the cultivation of Orchids, having a large stock of Cattleyas and Cyripediums. Cyripedium Sanderianum was found in a batch of C. Lawrenceanum, and was sold to Messrs. Sander & Sons, St. Albans. He also raised a number of Cyripedium seedlings.



SOCIETIES.



ROYAL HORTICULTURAL.

AT the fortnightly meeting held at the Royal Horticultural Hall, Vincent Square, Westminster, on September 14th, there was a moderate display of Orchids, and the awards consisted of four medals, one First-class Certificate, two Awards of Merit, and one Seedling Commendation, the latter being the name of the new certificate to be awarded to promising seedlings that are shown before their characters are fully developed.

Orchid Committee present:—J. Gurney Fowler, Esq. (in the Chair), J. O'Brien (hon. sec.), Sir Jeremiah Colman, Bart., Sir Harry J. Veitch, J. Wilson Potter, Stuart Low, F. Sander, F. J. Hanbury, R. A. Rolfe, T. Armstrong, W. Cobb, J. Charlesworth, W. H. Hatcher, W. P. Bound, A. Dye, W. H. White, S. W. Flory, W. Bolton, and Gurney Wilson.

R. G. Thwaites, Esq., Chessington, Streatham (gr. Mr. Hannington), sent a plant of Cattleya O'Brienana alba and two good examples of the beautiful Cattleya Warscewiczii Frau Melanie Beyrodt, whose history was given at page 270.

Messrs. Stuart Low & Co., Jarvisbrook, Sussex, staged a fine group of well-grown things, including examples of *Cattleya Hardyana* and var. *alba*, *C. Harrisoniana*, *Iris*, *C. Warscewiczii*, and *C. Gaskelliana* Milady, with white sepals and petals and a coloured lip, a fine plant of *Cycnoches maculatum* with a spike of fourteen male flowers, *Dendrobium formosum*, *Oncidium varicosum*, *oblongatum*, and a fine specimen of *O. incurvum* with nine large panicles of flowers, *Cymbidium erythrostylum*, *Cypripedium Parishii*, two richly-coloured *Vanda cœrulea*, and others (Silver Flora Medal).

Messrs. Charlesworth & Co., Haywards Heath, staged a select group, including fine examples of *Odontoglossum grande*, *Cattleya Alcimeda*, *C. Fauna*, and *C. Rhoda* var. *Czarina*, having clear yellow sepals and petals and a bright rose-purple lip, *Sophrolælia heatonensis*, *Brassocattleya Maroniæ*, *Odontoglossum crispum xanthotes*, *Paphinia cristata*, *Cypripedium Rossetti*, *Odontonia Magali-Sander* var. *xanthotes*, and others (Silver Banksian Medal).

Messrs. J. & A. McBean, Cooksbridge, staged a choice group, including *Odontonia brugensis* with a spike of seven flowers, *Cattleya Katie* (*fulvescens* × *Dowiana aurea*), *C. Gladys* (*Atalanta* × *Dowiana aurea*), *C. Iris*, *Oncidium Mantinii*, *O. varicosum aureum*, *Odontoglossum percultum*, some good *O. crispum*, *Odontioda Bradshawiæ*, *Odontocidium Juno* (*O. tigrinum* × *O. ramosissimum*), and other interesting things (Silver Banksian Medal).

Messrs. Sander & Sons, St. Albans, staged a very interesting group, containing several fine *Læliocattleyas*, *Odontonia McNabiana* and *O. St.-Alban*, *Bulbophyllum grandiflorum* and the rare and curious *B. bisetum*, *Cattleya Dowiana aurea*, *Iris*, and *Maronii*, *Cypripedium Dallas*, *Alma Gevaert*, and other good things (Silver Banksian Medal).

Messrs. Armstrong & Brown, Tunbridge Wells, sent *Cattleya Kienastiana* Orchidhurst var., having white sepals and petals and a coloured lip, *Odontoglossum nævross* (*nævium* × *Rossianum*), *Cymbidium sandhurstiense* (*Wiganianum* × *erythrostylum*), having honey yellow flowers with lines of reddish dots, *Brassocattleya The Czar* (*C. Fabia* × *B.-c. Veitchii*), and *B.-c. Admiral Jellicoe* var. *delicata*, a fine light form.

Messrs. Flory & Black, Orchid Nursery, Slough, sent good forms of *Cattleya Hardyana* and *C. Kienastiana*, an exceptionally fine *Brassocattleya Veitchii* var. *Queen Alexandra*, *B.-c. Ilene*, *Læliocattleya Thyone*, *Cypripedium Germaine Opoix*, and a good plant of *Cycnoches peruviana*, bearing a spike of eleven male flowers.

FIRST-CLASS CERTIFICATE.

CATTLEYA VENUS VAR. *PRINCESS MARY* (*Iris* × *Dowiana aurea*).—A very beautiful form, having bronzy yellow sepals and petals, and a lip of

the Iris type, the side lobes being very small, rose veined with white, and the front lobe very broad and bright ruby crimson. Exhibited by Messrs. Charlesworth & Co.

AWARDS OF MERIT.

CATTLEYA AMABILIS FOWLER'S VAR. (*labiata* × *Warscewiczii*).—A very large and brilliant form, bearing an inflorescence of four flowers, the sepals and petals being rose-coloured and the broad lip crimson-purple in front. Exhibited by J. Gurney Fowler, Esq.

DENDROBIUM HOOKERIANUM FOWLER'S VAR.—A remarkable form, differing from the type in having the petals about twice as broad as usual and deeply fringed, as in the lip. Exhibited by J. Gurney Fowler, Esq.

SEEDLING COMMENDATION.

(This is the new Certificate to be awarded to meritorious seedlings when shown before they are fully developed).

CATTLEYA ASHTONIÆ (*O'Brieniana alba* × *Dusseldorfii Undine*).—A dwarf plant, bearing a single pure white flower, most like the former in general character, but more like *C. intermedia* in the shape of the side lobes. Exhibited by Messrs. Armstrong & Brown.

At the meeting held on September 28th there was a fine display of Orchids, and three of the eight medals awarded came from amateur exhibitors. Two First-class Certificates, an Award of Merit, and a Lindley Medal were also given.

Orchid Committee present: J. Gurney Fowler, Esq. (in the Chair), James O'Brien (hon. sec.), Sir Harry J. Veitch, Sir Jeremiah Colman, Bart., J. Wilson Potter, F. J. Hanbury, R. G. Thwaites, F. Sander, T. Armstrong, R. A. Rolfe, J. Charlesworth, J. Cypher, W. H. Hatcher, J. Shill, W. Bolton, and Gurney Wilson.

Dr. Miguel Lacrose, Roehampton, received a Silver Banksian Medal for a fine group, consisting largely of about 26 well-grown *Odontoglossum grande*, with examples of *O. Clyte*, *Brassocattleya Hyeæ*, *Læliocattleya Phœbus*, *Cattleya bellatula*, *C. Harrisoniana*, a hybrid of *C. granulosa* *Schofieldiana* with seven flowers, *Cypripedium Massaianum*, and others.

H. T. Pitt, Esq., Rosslyn Hill, received a Silver Banksian Medal for a good group, including examples of *Cattleya suavior*, *Thalia*, *Iris*, *Mantini*, a fine form of *C. Fabia*, *Odontoglossum bictoniense* and *Pescatorei*, *Dendrobium ciliatum* and var. *annamense*, *Brassocattleya Big-Ben* (*C. Thurgoodiana* × *B. Digbyana*), a very fine purple hybrid with a yellow throat, and *Læliocattleya Nestor* (*L.-c. Martinetii* × *C. Dowiana aurea*), a very promising thing, having bronze-coloured sepals and petals mottled with yellow, and a darker lip with some yellow veining on the disc.

R. G. Thwaites, Esq., Chessington, Streatham (gr. Mr. Hannington),

also received a Silver Banksian Medal for a good group, including *Cattleya Euphrasia* and *Adula*, each in three good examples, *C. Hardyana*, a fine *Læliocattleya rubens*, L.-c. *Thyone* and *Ingramii*, *Sophronitis Phœbus*, with a large bright red flower, and a few others.

Sir Jeremiah Colman, Bart., Gatton Park, Reigate (gr. Mr. J. Collier), sent *Brassocattleya* Mrs. J. C. Hurst var. *alba* (*B. nodosa* × *C. Trianæ*), with four white flowers, *Læliocattleya Eileen* (*L. pumila* × *C. amabilis*), having rose-purple sepals and petals, and a darker lip with two yellow blotches in the throat, and *Cattleya Aleimeda cœrulea*.

E. R. Ashton, Esq., Camden Park, Tunbridge Wells, showed a fine plant of *Cattleya Iris*, bearing two spikes of flowers.

H. S. Goodson, Esq., Fairlawn, Putney (gr. Mr. Day), sent a good *Odontoglossum Rossii* hybrid bearing five richly-coloured flowers.

Pantia Ralli, Esq., Ashted Park (gr. Mr. Farnes), sent a finely-grown *Vanda cœrulea*, bearing a spike of 14 very richly-coloured flowers.

Messrs. Charlesworth & Co., Haywards Heath, staged a group of well-grown plants, including *Odontoglossum crispum xanthotes*, *eximium*, and a fine *O. grande*, good forms of *Cattleya Fabia* and *Iris*, *C. Venus* with clear yellow sepals and petals, and a rose-coloured Iris-like lip, the rare *Catasetum pileatum*, *Epidendrum vitellinum*, *Læliocattleya Britannia*, *Oncidium varicosum*, *incurvum*, and others (Silver Banksian Medal).

Messrs. J. Cypher & Sons, Cheltenham, sent a good group, including the pretty *Miltonia Phalænopsis* with four spikes, examples of *Oncidium oblongatum*, *O. varicosum*, *O. incurvum* and var. *album*, *Brassia brachiata*, *Cattleya Mantinii*, *C. Dusseldorfii Undine*, *Dendrobium formosum* and *Phalænopsis*, *Masdevallia bockingensis*, *tovarensis*, and the rare *M. gargantua*, *Epidendrum armeniacum*, *Brassavola nodosa*, several *Odontoglossum grande*, *Cypripedium Rossetti*, and others (Silver Banksian Medal).

Messrs. Stuart Low & Co., Jarvisbrook, Sussex, staged a fine group, including an example of the rare *Houlletia Brocklehurstiana*, *Dendrobium Victoria-Regina*, *Oncidium Kramerianum*, *O. varicosum*, and the rare *O. microchilum*, *Cycnoches chlorochilon* and *peruvianum*, a well-bloomed *Vanda cœrulea*, *Stenoglottis longifolia*, *Odontioda Devosiana*, *Sophrœlia heatonensis*, and a number of good *Cattleyas* (Silver Banksian Medal).

Messrs. Sander & Sons, St. Albans, staged a fine group, including a lot of good *Cattleyas*, conspicuous among them being several *C. Mantinii* and other *C. Bowringiana* hybrids. We noted also *Læliocattleya Mauretania*, the remarkable *Bulbophyllum grandiflorum* and the allied *B. Micholitzii*, with yellowish green flowers, some well-bloomed *Phalænopsis Esmeralda*, *Liparis longipes*, two plants of the striking *Cirrhopetalum Rothschildianum*, the rare *Cœlogyne Micholitzii*, *Sigmatostalix radicans*, *Gongora grossa*, *Cypripediums*, &c. (Silver Banksian Medal).

Messrs. J. & A. McBean, Cooksbridge, staged a choice little group, including *Vanda Sanderiana*, *Cymbidium erythrostylum* and *Doris*, *Oncidium varicosum Rogersii* with a very compact panicle, *Masdevallia Chimæra*, *Cattleya Iris* and *Enid*, *Sophrocathlælia Iris* (L.-c. *Gottoiana* × *S. grandiflora*), with rosy purple sepals and darker lip, and *Odontonia Scylla* (*O. cirrhosum* × *M. vexillaria*), having pink, acuminate sepals and petals and a darker lip (Silver Banksian Medal).

Messrs. Armstrong & Brown, Tunbridge Wells, sent a fine *Cattleya Armstrongiæ*, *Brassocathlælia General French* (L.-c. *George Woodhams* × B.-c. *Thorntonii*), *Odontioda Gloss* (*Odm. triumphans* × *Oda. Charlesworthii*), orange-red, and *Odontoglossum crispum memoria J. S. Moss*, heavily blotched with brown.

Messrs. Hassall & Co., Southgate, staged a pretty little group, including *Læliocattleya Pearl* (L.-c. *Norba* × *C. Gaskelliana alba*), a promising white flower, *Bassocattleya Nestor* (*C. labiata* × B.-c. *Maroniæ*), *Cattleya Naidia* (*iridescens* × *Hardyana*), most like the former in shape, and *C. Beatrice* var. *rubra*.

Messrs. Flory & Black, Orchid Nursery, Slough, sent *Brassocattleya Doris* (B.-c. *Maroniæ* × *C. Rothschildiana*), a large lilac-purple hybrid with light yellow disc, *Læliocattleya Soulange* (L.-c. *Lustre* × *C. Dowiana aurea*), and L.-c. *Rossetti* (*Antigone* × *bletchleyensis*).

FIRST-CLASS CERTIFICATES.

CATTLEYA KING-GEORGE (*triumphans* × *Dowiana Rorita*).—A magnificent hybrid, most like the latter parent in general character, and having the sepals and the broad, undulate petals clear light yellow, with the lip strongly undulate, and of a ruby crimson shade, with a paler margin and some yellow veining in the throat. Exhibited by Messrs. Flory & Black.

CATTLEYA LADY-VEITCH (*Lueddemanniana alba* × *Warneri alba*).—A chaste and beautiful hybrid, having very broad petals and lip, and the whole flower pure white, with a light yellow disc to the lip. Exhibited by Messrs. Sander & Sons.

AWARD OF MERIT.

BRASSOCATTLEYA MARS (*C. Maggie-Raphael alba* × B.-c. *Leemaniæ*).—A very promising hybrid, most like the latter, and having broad white sepals and petals, and a well-fringed, rose-pink lip, with a light yellow disc. Exhibited by Messrs. Armstrong & Brown.

LINDLEY MEDAL.

VANDA SANDERIANA.—A splendidly-grown specimen, grown from a dwarf piece imported several years ago, and now with four growths and six flower-spikes, with an aggregate of 42 finely-developed flowers. A seventh spike was also pushing up.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

At the meeting held at the Coal Exchange, Manchester, on September 2nd, the members of Committee present were: Rev. J. Crombleholme (in the Chair), Messrs. R. Ashworth, J. J. Bolton, J. C. Cowan, J. Evans, P. Foster, A. R. Handley, Dr. Hartley, J. Lupton, D. McLeod, W. Shackleton, S. Swift, H. Thorp, Z. A. Ward, G. Weatherby, and H. Arthur (Sec.).

A Large Silver Medal was awarded to R. Ashworth, Esq., Newchurch (gr. Mr. Gilden), for a very fine miscellaneous group, in which Cattleyas, and *Læliocattleyas* were well represented.

Silver Medals were awarded to Col. J. Rutherford, M.P., Blackburn (gr. Mr. J. Lupton), for a fine mixed group, in which home-raised *Læliocattleyas* and some good examples of *Epidendrum vitellinum autumnale* were conspicuous; to the Rev. J. Crombleholme, Clayton-le-Moors (gr. Mr. E. Marshall), for a fine group of *Cypripediums*, including some home-raised seedlings, and to Messrs. A. J. Keeling & Sons, Bradford, for a fine group, in which *Cypripediums* were prominent.

A Special Vote of Thanks was accorded O. O. Wrigley, Esq., Bury (gr. Mr. E. Rogers), for a fine group of *Cypripediums*, a plant of *Vanda Sanderiana*, and several exceptionally fine *Vanda cœrulea*, the latter gaining a First-class Cultural Certificate.

Interesting exhibits were also sent by Mrs. R. le Doux, West Derby (gr. Mr. J. W. Fletcher), and P. Smith, Esq., Ashton-on-Mersey (gr. Mr. E. Thompson), several of which appear in the award list.

FIRST-CLASS CERTIFICATES.

Miltonioda Harwoodii var. *Mme. le Doux* (*M. vexillaria* × *C. Noetzliana*), a flower of good form and size, with large flat lip, and the colour rosy scarlet, from Mrs. le Doux.

Odontioda Brewii var. *Brunette*, a fine flower, with chestnut sepals and petals, red, and the lip chrome orange, from R. Ashworth, Esq.

Cattleya Venus Haddon House var. (*Iris* × *aurea*), a large flower, with a yellow vein in the centre of the petals, and a well-filled, spreading lip, from P. Smith, Esq.

AWARDS OF MERIT.

Cattleya Sybil var. *aureum* and *Odontioda Brewii heliotropium*, from R. Ashworth, Esq.

Læliocattleya George Woodhams Marlfield var. (*L. purpurata* × *C. Hardyana*), from Mrs. le Doux.

Cypripedium Solon St. Mary's var. (*tonsum* × *Rothschildianum*), from the Rev. J. Crombleholme.

Læliocattleya Rachael (*C. Iris* × *L.-c. bletchleyensis*), a showy thing, from P. Smith, Esq.

FIRST-CLASS CULTURAL CERTIFICATE.

Mr. E. Rogers, gr. to O. O. Wrigley, Esq., for fine examples of *Vanda coerulea*.

At the meeting held on September 23rd (postponed from 16th), the members of Committee present were: Rev. J. Crombleholme (in the Chair), Messrs. R. Ashworth, J. J. Bolton, J. C. Cowan, J. Cypher, J. Evans, P. Foster, A. R. Handley, A. Hanmer, J. Lupton, D. McLeod, W. J. Morgan, S. Swift, H. Thorp, Z. A. Ward, and H. Arthur (Sec.).

A Large Silver Medal was awarded to R. Ashworth, Esq., Newchurch (gr. Mr. Gilden), for a very fine miscellaneous group, in which *Cattleyas* and *Cypripediums* were particularly well represented, with several of the other leading genera.

Silver Medals were awarded to Col. J. Rutherford, M.P., Blackburn (gr. Mr. J. Lupton); to J. J. Bolton, Esq., Pendleton (gr. Mr. J. Law), and to Messrs. J. Cypher & Sons, Cheltenham, for fine mixed groups, the latter containing a plant of the rare *Zygopetalum rostratum*.

A Special Vote of Thanks was awarded to O. O. Wrigley, Esq., Bridge Hall, Bury, for a beautiful exhibit, containing 45 plants of *Cypripedium Maudiae*, and eleven of *Odontoglossum grande*, with examples of *Epidendrum vitellinum autumnale* and *Cattleya Gaskelliana alba*.

Interesting exhibits were also sent by J. Leeman, Esq., Heaton Mersey (gr. Mr. S. Smith); H. J. Bromilow, Esq., Rann Lea (gr. Mr. W. J. Morgan); S. Gratrix, Esq., Whalley Range (gr. Mr. W. W. Field); A. J. Oakshott, Esq., Bidston (gr. Mr. Findlow); W. P. Burkinshaw, Esq., Hull (gr. Mr. J. T. Barker), and Messrs. A. J. Keeling & Son, Bradford, several of which figure in the award list.

FIRST-CLASS CERTIFICATES.

Brassocatlælia Wotan var. Mr. J. Leeman, a fine flower, with well-fringed lip, from J. Leeman, Esq.

Cattleya Venus Rann Lea var., a well-coloured form, with elongated lip, from H. J. Bromilow, Esq.

AWARDS OF MERIT.

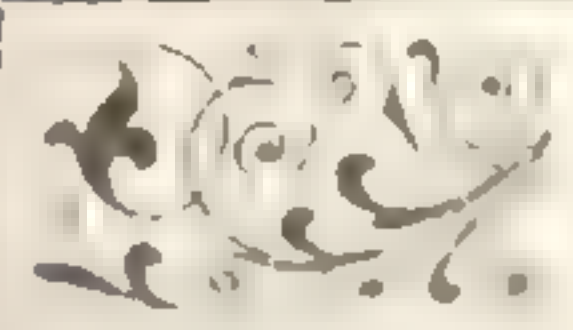
Odontoglossum crispum mirabile, and *Cattleya Katie* (*fulvescens* × *Dowiana aurea*), from R. Ashworth, Esq.

Cattleya Snowdon (Suzanne Hye de Crom × *Gaskelliana alba*), and *Læliocattleya Mrs. McMasters* var. *splendens* (*luminosa* × *Dowiana aurea*), from J. Leeman, Esq.

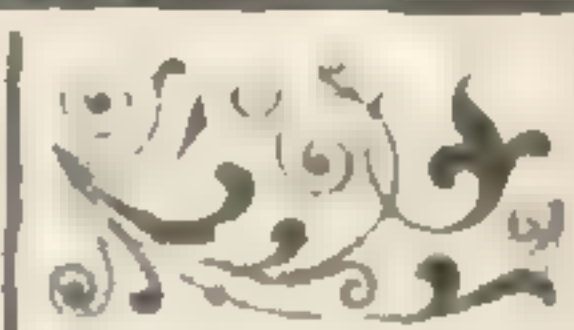
Cattleya Sybil var. *Boltonii*, from J. J. Bolton, Esq.

FIRST-CLASS CULTURAL CERTIFICATE.

To Mr. E. Rogers, gr. to O. O. Wrigley, Esq., for *Cypripedium Maudiae* and *Odontoglossum grande*.



CATTLEYA TRIUMPHANS.



BEAUTIFUL as are the hybrids of *Cattleya Dowiana*, they have been rather disappointing as regards colour, for when crossed with the allied purple-flowered species the colour of the latter has invariably been dominant. It was at one time thought that if these primary hybrids were re-crossed with *C. Dowiana* the yellow might return, but the idea has not



Fig. 40. *CATTLEYA TRIUMPHANS* MARON'S VAR.

worked out in practice. The fact is, *C. Dowiana* stands almost in a class by itself, as anything approaching it in colour is too different in other respects. But there is an exception, for *C. Rex* is very nearly allied to *C. Dowiana*, and the similar shape, the beautifully veined lip, and the delicate cream-yellow of the sepals and petals give every promise of a successful combination. Unfortunately the two species do not bloom quite together, and as *C. Rex* is rare in cultivation opportunities for crossing the two do

not often occur. But the hybrid has been twice raised, by Messrs. Sander & Sons and by M. Ch. Maron, and has not disappointed expectations. The former flowered it in July, 1904, when it received an Award of Merit from the R.H.S. (*O.R.*, xii. p. 244), and the latter about a year later, this being called Maron's var. (*l.c.*, xiii. p. 305, fig. 66). Its general character is well shown in the annexed figure (p. 313). The sepals and petals are clear light yellow, and the lip rosy crimson, with radiating light yellow veins all over, and a broad, very undulate, light yellow margin. It is interesting to compare the three together in M. Goossens' coloured figures (*Dict. Ic. Orch.*), and to note the intermediate character of the lip of *C. triumphans*, the resemblance to *C. Rex* being seen in the more infolded side lobes, and the closer, more delicate yellow veining, with the distinctly reticulated character seen in the same parent, instead of the continuous lines of *C. Dowiana*. It is a cross that should be repeated whenever the opportunity occurs, for it is extremely rare, and is the one most likely to originate the race of yellow hybrids so much desired in the labiata group. The utility of such a cross lies in the fact that no disturbing element is introduced, and the possibility of further development is seen in the brilliant *Cattleya King-George*, which is the subject of the following note.



CATTLEYA KING-GEORGE.

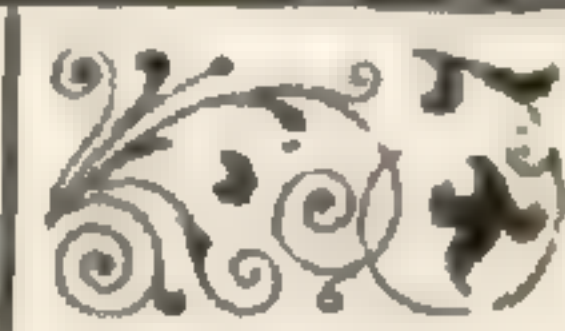


AN extremely brilliant hybrid was shown at the R.H.S. meeting held on September 28th, by Messrs. Flory & Black, Orchid Nursery, Slough, and was unanimously awarded a First-class Certificate. Its parents are *C. Dowiana aurea* and *C. triumphans*, the latter the beautiful hybrid figured on the previous page, and the opinion was unanimous that it is one of the finest hybrid *Cattleyas* that has yet appeared. It differs from *C. triumphans* in having broader, more undulate petals, and a more strongly undulate lip, which is more open at the base, so as to show the white column, these characters naturally arising as the result of re-crossing with *C. Dowiana*, but a certain resemblance to *C. Rex* is retained in the shape of the petals, and in the more delicate veining of the lip. The sepals and petals are clear light nankeen yellow, with a small purple blotch at the apex of the latter, and the lip may be described as ruby crimson, with delicate yellow veining all over, and a paler margin. It is a triumph of hybridisation, and Messrs. Flory & Black must be congratulated on such a brilliant acquisition. We should much like to see the result of re-crossing *C. triumphans* with the other parent, for *C. Rex* is such a distinct and delicately-coloured species that it is worth following up, and the effect of hybridising it in this way might give it just the strength of constitution

that the species seem to lack. M. Forget's opinion of *C. Rex* is on record (see p. 282), but there is no gainsaying the fact that it has somewhat disappointed expectations as a garden plant, and few have succeeded in growing it well for long together.



ORCHIDS AT KEW.



THE Orchid houses at Kew are always interesting, and generally there is a brilliant display of flowers, as at the present time, when *Cattleyas* and allied genera, and the *Cypripedium* group, are making a good show. A fine plant of *Miltonia candida* is bearing thirty-two spikes and an aggregate of 172 flowers, and affords an object of excellent culture. Several other Brazilian *Miltonias* are also in bloom. The remarkable *Chondropetalum Fletcheri* is bearing two spikes and eleven flowers, most like those of the *Zygopetalum* parent, but the pale primrose, minutely fringed lip shows the influence of *Chondrorhyncha Chestertonii*, which is known to have been the other parent—a fortunate circumstance, for it is doubtful whether anyone would have guessed it without the record, *Zygopetalum* parent being so completely dominant in habit, structure, and colour, that it would inevitably have been taken for a new species of *Zygopetalum*, had it appeared as a wild plant. Near it are plants of *Zygopetalum Mackayi*, *intermedium* and *maxillare* in bloom. A good plant of *Sigmatostalix radicans* is bearing a profusion of flowers, not unlike a miniature *Oncidium* with a white lip. *Lanium Berkeleyi*, *Pleurothallis lateritia*, with brick-red flowers, and *Stelis barbata*, with small, very hairy flowers are interesting, while a number of the Orchis-like *Stenoglottis longifolia* are also in bloom.

In one of the Warm houses two groups of *Phalænopsis Esmeralda* are bearing a proffusion of erect spikes of light purple flowers, and several species of *Cirrhopetalum* are in bloom, these including *C. Micholitzii*, *biflorum*, *fascinator*, *ornatissimum*, and *gracillimum*. They are very interesting little plants, and there is a quaintness about the flowers that is very captivating. Several *Stanhopeas* have recently bloomed, and from the size and quaintness of their flowers are always attractive, though they do not last long. Near by is a plant of the rare and pretty *Bifenaria aurantiaca*. *Ione bicolor* quite resembles a small *Bulbophyllum* in habit, and is blooming freely, while *Bulbophyllum saltatorium* is almost like *B. barbatum* with a shorter, denser spike. *B. bisetosum* is a very quaint little species, and is bearing nine of its slender pendulous spikes. *Catasetum Russellianum*, *Mormolyce lineolata*, and *Arundina chinensis* are other rarities, and *Cynoches pentadactylon* is bearing a spike of male flowers. The list might be much prolonged.



DENDROBIUM HOOKERIANUM.



A PLANT of the handsome *Dendrobium Hookerianum* was exhibited at the R.H.S. meeting held on September 14th from the collection of J. Gurney Fowler, Esq., Brackenhurst, Pembury (gr. Mr. Davis), together with a remarkable variety having deeply fringed petals. The species is probably the handsomest of the yellow-flowered species, but has long been known as difficult to cultivate. It was originally described by Lindley, in 1859 (*Journ. Linn. Soc.*, iii. p. 8), from materials collected in Sikkim by Sir J. D. Hooker, and it is also a native of Assam and the Khasia Hills, where it occurs at altitudes of 3000 to 6000 feet.

It appeared in cultivation some years later, and was described by Reichenbach under the name of *D. chrysotis* (*Gard. Chron.*, 1870, p. 1311), from a plant which flowered with Messrs. James Brooks & Son, Fairfield Nurseries, Manchester. It also received a First-class Certificate from the R.H.S. in September, 1870. Its history was given when, in September, 1873, a flower that had been received from the collection of Mr. Warner, was painted by Mr. John Day (*Orch. Draw.*, xvi. t. 25). Mr. Day then remarked: "This splendid species was first introduced into this country by me, through the exertions of my nephew, Captain W. J. Williamson, of Assam. It was found in the Bhootan Hills. I first received it in the spring of 1868, but did not know what it was. I have received considerable numbers of it every season since, and it appears to be common enough where it grows. I have never succeeded in blooming it, nor even in growing it, although I have tried it in every house I have, in pots and blocks and baskets, in heat and cold." He then went on to speak of the success with which it was grown by Mr. Warner, which may be seen in a figure afterwards published (*Warn. Sel. Orch.*, iii. t. 6).

The two were connected when, in January, 1873, *D. Hookerianum* was figured in the *Botanical Magazine* (t. 6013), with *D. chrysotis* as a synonym. The identity was not admitted by Reichenbach, who as late as 1887 (*Gard. Chron.*, 1887, ii. p. 616), claimed *Bot. Mag.*, t. 6013 as *D. chrysotis*, which he regarded as a more slender plant than *D. Hookerianum*, of which latter he had just received "excellent materials from Mr. W. Bull." What these were we cannot say, but an examination of the original specimens leaves no doubt that *D. chrysotis*, Rchb. f., is only a synonym of *D. Hookerianum*, Lindl. The species is well marked by the golden yellow flowers, born in long racemes, and the two dark blotches on the disc of the deeply-fringed lip. Messrs. King & Pantling, however, remark that in Sikkim a variety without blotches on the lip is not uncommon.

D. HOOKERIANUM FOWLER'S VAR. is a remarkable peloriate variety, differing from the type in having the petals as well as the lip very deeply fringed, this giving the flowers a very distinct appearance. It was described from the collection of J. Gurney Fowler, Esq., about a year ago (*Gard. Chron.*, 1914, ii. p. 200), and received an Award of Merit from the R.H.S. on September 14th last. R.A.R.

GOODYERA REPENS.—This native species is an Orchid very seldom found in gardens. It would be interesting to know in what gardens it is cultivated, and where it is known to blossom. At the present time a small plant in the Wilderness garden at Shirley has thrown up two flower spikes, one of which is fully developed and the other only now starting. The spike in bloom bears twenty-two flowers. It is four years since a tiny bit of the plant was planted, and it has spread underground quite eighteen inches from the original spot.—W.W.

The note appeared in a recent issue of the *Gardeners' Chronicle*, and we welcome the Secretary of the R.H.S. to the ranks of the Orchidists. We may add that this interesting little plant is cultivated at Kew, and its name appears both in the Hand Lists of Orchids and of Herbaceous Plants. It is very widely diffused all round the northern hemisphere, and it is interesting to recall the account of its discovery in Pine woods in Norfolk a few years ago, as recorded at pp. 326 and 327 of our fourteenth volume. It is thought to have been introduced there, as its other British habitats are in Scotland and the Lake District.

PARIS CONGRESS ON GENETICS.

IN the Report of the International Congress on Genetics, held at Paris in September, 1911, is a paper by M. Ch. Maron, in which he describes the method by which he produced *Cattleya Rutilant*. One of the parents he obtained by crossing *C. velutina* with *C. aurea*, giving *C. Maroni*. The flowers were chamois yellow, with the lip striped with white and carmine. The other parent, *C. Vigeriana*, was produced by crossing *C. aurea* with *C. labiata*. *C. Rutilant*, the hybrid produced by crossing *C. Maroni* with *C. Vigeriana*, possesses medium-sized flowers with a trilobed lip. It obtained a First-class Certificate in London on September 29, 1908. *C. Vigeriana*, it is remarked, is a flower of brilliant carmine colour, and it is suggested that the brilliant colour of the lip of the *C. aurea* parent has suffused itself through all the segments of the hybrid. M. Maron also remarks that the influence of certain parents is very marked and difficult to modify. For example in *Cattleyas* three-fourths derived from a large-

flowered *Cattleya* with an entire lip, and one fourth from one of medium size with a three-lobed lip, the three-lobed lip will persist, slightly modified in shape, and smaller size.

A paper by Major C. C. Hurst, F.L.S., on *The Principles of Genetics*, includes some references to Orchids, particularly albino *Cattleyas* and the origin of a scarlet *Odontoglossum crispum*, which have already been noted in our pages. There is also an interesting reference to self-fertilisation:—
“The fact of the existence of a certain amount of self-sterility in many Orchids makes breeding somewhat more complicated than in other plants. For instance, for several years I have been attempting to self certain segregates of *Cypripedium Hera*, and so far the only positive result obtained has been one plant raised from *C. Hera punctatum*, and an apparently good pod of seed now developing on *C. H. Hurstii*. More than 150 selfings have given no good seeds.”

The following extracts are also significant:—

How are Mendelian factors produced? That is the problem that now presents itself, and from the true solution of which we are still far distant.
—H. NILLSON-EHLE.

For nearly forty years I have had opportunities of watching many thousands of plants under cultivation, and my own opinion, which is shared by my collaborators, is that there is nothing approaching a new species which has arisen by a mutation.—A. W. SUTTON.

ODONTOCHILUS LANCEOLATUS.—A very distinct and pretty little Orchid of the *Anæctochilus* group has flowered in the collection of H. J. Elwes, Esq., Colesborne Park, Glos. It is a native of Sikkim, and proves to be the plant originally described by Lindley under the name of *Anæctochilus lanceolatus* (*Gen. & Sp. Orch.*, p. 499), but which afterwards proved to belong to the allied genus *Odontochilus*, and was called *O. lanceolatus*, Benth. (*Hook. f. Fl. Brit. Ind.*, vi. p. 101). King & Pantling, however, retain the original name (*Orch. Sikkim*, p. 295, t. 392). It occurs in Sikkim at 5000 to 6000 feet elevation, and is also found in the Khasia Hills. The leaves are green, and the flowers are borne in an erect spike about six inches high, the sepals and petals being light green, and the lip bright yellow, with two obliquely-spreading front lobes, and a strongly-toothed claw. The anther is pink. The plant afterwards called *Anæctochilus luteus* by Lindley has proved identical. The difference from *Anæctochilus* lies in the lip having only a short sac, concealed behind the base of the lateral sepals, instead of a somewhat elongated spur. The large bright yellow lip gives the flowers a very attractive character. We do not find a record of the plant being in cultivation before.—R.A.R.

 ORCHID NOTES AND NEWS.

TWO meetings of the Royal Horticultural Society will be held at the Royal Horticultural Hall, Vincent Square, Westminster, during October, on the 12th and 26th, when the Orchid Committee will meet at the usual hour, 12 o'clock noon.

The Manchester and North of England Orchid Society will hold meetings at the Coal Exchange, Manchester, on October 7th and 21st. The Committee meets at noon, and the exhibits are open to the inspection of members and the public from 1 to 4 p.m. The succeeding meeting is fixed for November 4th.

The shortage of labour owing to the war is being felt in many Orchid Establishments, and in some cases is imposing considerable difficulties, as we know by personal correspondence. Owing to this cause Messrs. Thibault, of Nantes, are offering a large lot of Orchids for sale, particulars of which will be found in our advertisement pages.

Mr. Douglas A. Sinclair, who some three years ago went to Borneo to collect Orchids for the Hon. N. C. Rothschild and Sir Marcus Samuel, and who later emigrated and ultimately joined the ranks of a colonial battalion at the Dardanelles, is reported in the *Gardeners' Chronicle* to have been wounded, but it is hoped not severely. He is a nephew of the late Mr. Sinclair, who at one time held a responsible position with Messrs. James Veitch & Sons.

Two fine forms of *Cattleya* Sybil, Scintillant, and rotundobellum, raised from the same seed-pod, are figured together in the *Gardeners' Chronicle* (p. 119, fig. 39). They are from the collection of J. Gurney Fowler, Esq. The former, which received a First-class Certificate, has an Iris-like lip, and the latter, which gained an Award of Merit, an entire lip. It may be remembered that we figured seven others from the same seed-pod at page 265 of our last volume, and another, the superb variety, Lord Kitchener, for which Messrs. Hassall received a First-class Certificate, at page 297.

A very handsome inflorescence of *Stenoglottis longifolia* has appeared in the collection of H. J. Elwes, Esq., Colesborne, Glos. The scape is about three times as stout as usual, somewhat flattened towards the apex, and crowded with its pretty light purple flowers, giving it a very distinct appearance. It appeared among plants of the normal form, with which it agrees entirely in its five-lobed lip.

ORCHID SEEDLINGS.—The possibility of growing Orchid seedlings in an unheated house during the summer months is suggested by a note in the *Gardeners' Chronicle*. In June last a new boiler was being installed in a block of houses at Warren House, Stanmore, and most of the seed-pots and stores were removed to a warm house in another range. A good number of seed-pots, however, with numerous young plants in various stages, from which a sufficient stock had been pricked off, were left behind, and remained in the unheated house till nearly the end of August, and it is said that not one of the little plants died, and all of them compared favourably with those that were removed to a warm house. They were presumably the usual Warm house things, but it is not stated what they were.

LISTROSTACHYS BROWNII.—A plant of this distinct *Listrostachys* has just flowered with Sir Frederick W. Moore at the Royal Botanic Garden, Glasnevin. It is a native of Uganda, and was collected at 3900 feet elevation in the Entebbe district by Mr. E. Brown, and described in 1906 (Rolfe, in *Kew Bull.*, 1906, p. 378). It belongs to the *L. arcuata* group, and is distinguished among its allies by its short, rather numerous leaves, and dense racemes, which slightly exceed the leaves in length. The spur is about $\frac{3}{4}$ inch long, and so strongly curved that it points towards the apex of the raceme. The bracts are broad, and in the dried state the spike somewhat resembles a broad head of wheat. Mr. Brown remarks that it is a showy plant, growing in masses, and each growth usually producing two spikes. The leaves are about $2\frac{1}{2}$ inches long, and the flowers white and very fragrant.—R.A.R.

ORCHIDS FROM WARRINGTON.—A hybrid *Cypripedium* sent from the collection of W. Bolton, Esq., Wilderspool, Warrington, was obtained from *C. Curtisii* × *vexillarium*, and has the general shape of the former, but the whole flower is much more suffused with purple, while the drooping petals recall *C. vexillarium*. The characters of the two parents are very well combined. Another cross in the collection has given a very curious result. *C. insigne* Oddity × *Watsonianum* (concolor × *Harrisianum*) has reproduced the curious peloriate condition of the former, having the petals transformed into lips, though not clasping the normal lip quite so much. It will be curious to see if other seedlings have the same character.

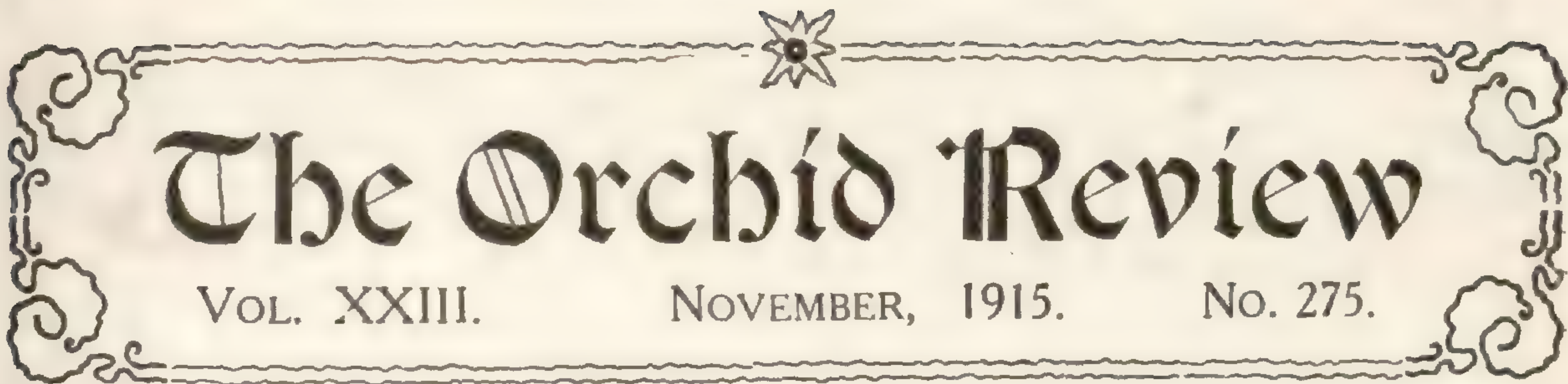


ANSWERS TO CORRESPONDENTS.



J.H.—*Maxillaria rufescens*, Lindl.

X.—*Stanhopea Wardii*, Lodd., and always easily distinguished from *S. oculata*, Lindl. by the short broad hypochil of the lip. The basal blotches occur in several species. Several notes are unavoidably held over till next month.

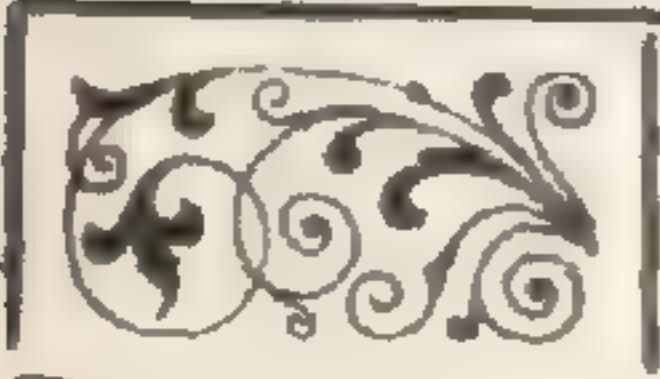


The Orchid Review

VOL. XXIII.

NOVEMBER, 1915.

No. 275.



OUR NOTE BOOK.



A LARGE number of hybrids more or less directly derived from *Cattleya Dowiana* have appeared at the last few meetings of the R.H.S., and it is curious how few of them reproduce the yellow sepals and petals of the parent. The combinations with *C. Bowringiana* and *C. labiata* are almost invariably purple, unless an albino is used, when the hybrid may have white sepals and petals, and a richly-coloured lip. This is the case with *C. Fabia alba*, the result of uniting *C. Dowiana* with a white *labiata*. In either case the yellow is lost. No white form of *C. Bowringiana* has ever appeared, so that the case of getting *C. Mantinii* with white sepals and petals is remote. In some cases the influence of *C. Dowiana* seems to intensify the shade of purple, as if the colour of the lip of the *Dowiana* parent had suffused itself through the other segments of the hybrid, as suggested by M. Ch. Maron (see p. 317) in the case of the intense purple *C. Fabia Vigeriana*, which is the darkest form of *C. Fabia* known to us. This brilliant variety received a First-class Certificate from the R.H.S. in September, 1908, and a plant that we believe is identical was shown at the last R.H.S. meeting from the collection of Walter Cobb, Esq. The purple is so dark as to half obliterate the beautiful yellow veining on the lip. There is something exceptional about the plant, and it would be interesting to know what particular varieties were used, and if other seedlings were equally dark in colour.

Owing to this particular behaviour of the hybrids of *C. Dowiana* the problem of increasing the number of yellows in the *labiata* group seemed hopeless, for re-crossing with *C. Dowiana* does not secure a return of the yellow colour, a fact which emphasises the exceptional character of the brilliant *Cattleya King-George* (described at page 314) in which the sepals and petals are of a clear light nankeen yellow, just the shade that has so long been sought in vain. It is the result of re-crossing *C. triumphans* (*Dowiana aurea* × *Rex*) with *C. Dowiana aurea*, and as neither *Rex* nor

triumphans have purple in the sepals and petals it was just the cross likely to succeed, in fact, *C. Dowiana* and *C. Rex* are very nearly allied in every respect, and their union resulted in the brilliant *C. triumphans*, whose portrait is given at page 313. *Cattleya King-George* was unanimously awarded a First-class Certificate, and it now remains to make further experiments in the same direction.

Another Seedling Commendation was awarded at the R.H.S. meeting held on October 12th last, the recipient being a handsome *Odontoglossum* raised by Messrs. Armstrong & Brown, and called *O. Victory*, the parentage being given as *O. crispum* The Baroness $\times$ seedling unrecorded. As to its general character reference may be made to the description given on page 340, and its beauty is beyond dispute, but we regret that for the present it must find a place in the ranks of the doubtfuls. The difficulty in this case seems to come from the second parent, and whether the parentage of this could be made out by comparison remains to be proved when its identity is indicated. As to the seedling itself it may be interesting to give the following cutting from the daily press:—

“THE WHITE ORCHID.

“One of the outstanding features at the show of the Royal Horticultural Society at the Horticultural Hall, Westminster, yesterday, was a seedling Orchid of the *Odontoglossum* variety, and named *Odontoglossum Victory*. It has been produced by Messrs. Armstrong & Brown, Sandhurst Park, Tunbridge Wells, who declared that they would not part with it for £300.

“The Orchid is a finely-formed white flower, blotched with light brown, and represents a great advance on anything previously seen. A great Orchid expert says: ‘The balance of the segments is absolutely perfect.’”

A final note under the same heading may also be preserved, though it does not refer to the *Odontoglossum*.

“Another novel exhibit was *Lælia Pumil alba*, a pure white Orchid exhibited by Messrs. Flory & Black, Slough. The percentage of white Orchids produced is one in 50,000.”

Another interesting innovation appeared at the last meeting of the R.H.S. Plants are sometimes passed over by the Orchid Committee because a certificate has already been awarded, and the point is not always appreciated by exhibitors. An attempt is now being made to remedy this, by affixing a label to the plant stating that a First-class Certificate or an Award of Merit, as the case may be, has already been given. To this end a number of enamelled labels have been prepared, to be attached to the plant for the duration of the meeting, and which

must not be taken away by the exhibitor. Three such plants were indicated at the last meeting, and it was interesting to compare them with the plants certificated on the same date. It must not, of course, be assumed that the plants so labelled are in the same condition as when originally certificated, for there is that undefinable something that culture gives which often determines whether a certificate shall be awarded or not. But one thing is likely to be demonstrated, and that is the increasingly high standard required to secure a certificate as time goes on—at all events in the case of hybrids—and this is a sure indication of progress. If the arrangement is carried out thoroughly it will give a new interest to the meetings, for it is certain that some of the certificated Orchids of the past would be passed over to-day.

A recent article on Unit-characters, by Mr. S. J. Holmes, places these hypothetical beings in rather a new light. It appears in the *Journal of Heredity*, with the supplementary heading, "Reality of Their Existence is Fundamental to Study of Evolution, But Has Never Been Proved." We are told that "the doctrine of unit-characters is one that has figured largely in speculation on heredity and evolution from the time of Darwin to the present. According to this doctrine an organism is a sort of mosaic of parts, each of which is dependent for its development upon some kind of discrete entity in the germ cell. The germ cell is therefore considered a complex of organic units more or less independent of one another in their activities and transmission."

We had an idea that unit-characters were something that were peculiarly associated with the discoveries of Mendel, and it has been claimed that "Had Mendel's work come into the hands of Darwin, it is not too much to say that the history of the development of evolutionary philosophy would have been very different from that which we have witnessed." We do not remember any reference to "unit-characters" in the *Origin of Species*, and the claim that "the word does not occur in the Index" can be better substantiated than the one about "adaptations," to which we alluded last month.

Mr. Holmes remarks that many of the difficulties urged against the theory of natural selection disappear when variations are considered as belonging to the organism as a whole, and not as limited primarily to particular parts. Most modern discussions consider evolutionary problems from the standpoint of the doctrine of unit-characters. Speculations are common as to how this or that character could have been developed through natural selection, as if each part were somehow separately improved by a

series of fortunate survivals. "If, on the other hand, variations of any one part involve variations throughout the organism, then the preservation of favourable variations in any one organ would of necessity entail changes in other organs which for the most part would probably have no relation to utility."

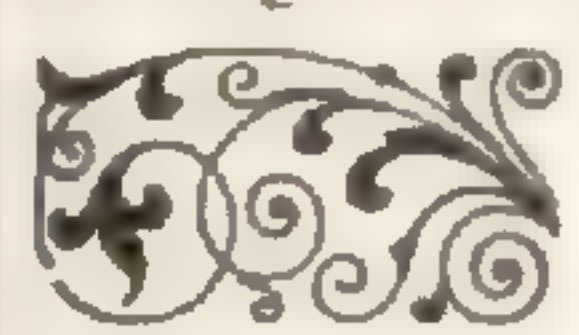
Darwin explained the term "Correlated variation" as meaning that "the whole organisation is so tied together during its growth and development, that when slight variations in any one part occur, and are accumulated through natural selection, other parts become modified," and we cannot improve on that.

The following note comes in well in the connection, though it was extracted for another purpose:—

EVOLUTION.—We may trace in organic nature long and finely graduated series leading upward from the lower to the higher forms, and we must believe that the wonderful adaptive manifestations of the more complex forms have been derived from simpler conditions through the progressive operation of natural causes. But . . . when the conserving action of natural selection is in the fullest degree recognised . . . we are utterly ignorant of the manner in which the ideoplasm of the germ cell can so respond to the influence of the environment as to call forth an adaptive variation.—Wilson, *The Cell in development and inheritance*, p. 434.

The note was not written with reference to Orchids, but is sufficiently appropriate, and the special point is that the responses *are made*, in spite of the profundity of our ignorance.

A new view is urged in connection with our comments on the Law of Priority discussed last month. It is that for horticultural purposes it may be neglected, and a recent criticism is cited that "For Scientific purposes a strictly scientific nomenclature is no doubt advisable, and certain international rules have been adopted at various quinquennial congresses." And we are told that in Messrs. Sander's *List of Orchid Hybrids* "the hybrid between *L. tenebrosa* and *C. aurea* is recorded under the well-known name *luminosa*, instead of the unrecognised *Truffautiana*," and "the hybrid between *C. Mossiæ* and *gigas* is recorded as *Enid*, and not under the earlier name *Adonis*." It is a safe rule to "verify your references," and had our correspondent done this he would have seen that no hybrids at all are enumerated under either *C. aurea* or *C. gigas*. We read "*C. gigas*, *see Warscewiczii*," and "*C. aurea*, *see Dowiana*." The remark about their popularity is not contested, for no names have to be so frequently altered in reports. It is a good example of "go-as-you-please nomenclature."



THE GENUS KRÆNZLINELLA.



AN interesting little Orchid, with *Pleurothallis*-like habit and spikes of ochreous-red flowers, was exhibited by Messrs. Sander & Sons, St. Albans, at the R.H.S. meeting held on October 12th last. Its resemblance to *Pleurothallis platyrachis*, Rolfe (*Bot. Mag.*, t. 7129) at once caught the eye, but the scapes were not flattened. A search for the name revealed the fact that both the plants mentioned belong to *Krænzlinella*, a small genus not yet known among cultivated Orchids. The name was given by Kuntze to an Ecuadorean Orchid that was collected by Consul Lehmann, and described in 1899 under the name of *Otopetalum Tunguraguæ* (the change of name being necessary because there was an earlier genus *Otopetalum*, a Javan plant belonging to the Apocynaceæ). An unnamed specimen of this has been found in Lehmann's Herbarium, and a comparison shows that all the three plants mentioned are identical in structure, thus affording an opportunity to clear the confusion up.

In 1884 a Costa Rican Orchid, that had been collected by Mr. E. Shuttleworth, was sent to Kew by Messrs. Shuttleworth, Carder & Co. as *Masdevallia* sp. Soon afterwards it threw up a spike of flowers, which were quite anomalous in structure, and no name could be found for it. Four years later, when the plant was well developed, it was described under the name of *Masdevallia platyrachis*. It was remarked: "This is a new and very remarkable species of *Masdevallia*, and one which presents such a series of anomalous characters that it appears to constitute a totally new section of the genus." *Masdevallia* then included the curious plants with inverted flowers now referred to *Scaphosepalum*, and the resemblance of *M. platyrachis* to them was pointed out, though the flowers were not inverted. Some time later, when the genus *Scaphosepalum* was revised, *M. platyrachis* was referred to *Pleurothallis*, where, however, the position was still anomalous.

In 1899 the genus *Otopetalum* was described. It was said to be an ally of *Bulbophyllum* section *Didactyle*, differing, however, in the absence of pseudobulbs, and in having bilobed petals, somewhat resembling those of certain *Habenarias*. The plant was called *O. Tunguraguæ*, from the fact that it was discovered at the foot of Mount Tunguragua, on the Ecuadorean Andes. It was afterwards transferred to *Pleurothallis*, by Schlechter, and two additional species were described from dried specimens.

The affinity of the genus is with *Scaphosepalum*, the habit being very similar, also the two pyriform pollinia, but the flowers are not inverted, and the petals are obliquely auricled at the base, the two auricles being situated behind the column, and slightly clasping it, while the strongly recurved lip

is sigmoidly curved at the base, and the lateral sepals are connate. The scape continues to elongate and flower for a long time, as in *Masdevallia racemosa*, one of the Lehmann specimens bearing as many as forty bracts, which are conduplicate, curved, and strongly keeled, giving it a very curious appearance. The capsule is muricate, and about eight lines long.

The following are the known species:—

K. TUNGURAGUÆ, Kuntze, ex Pfitzer in *Engl. & Prantl. Pflanzen.*, Nachtr. iii. p. 86. *Otopetalum Tunguraguæ*, Lehm. & Kranzl. in *Eng. Jahrb.*, xxvi. p. 457. *Pleurothallis otopetalum*, Schltr. in *Fedde Rep. Nov. Sp.*, x. p. 292.—Ecuador; in open woods at the foot of Mt. Tunguragua, near Banos, at 1500-2000 ft. alt., Lehmann, n. 8088; and in the forest of Shoray, Prov. Cuenca, 1800-2400 m. alt. Flowers ochraceous.

K. PLATYRACHIS, Rolfe. *Masdevallia platyrachis*, Rolfe, in *Gard. Chron.*, 1888, ii. p. 178. *Pleurothallis platyrachis*, Rolfe, in *Journ. Bot.*, 1890, p. 136, in note; *Bot. Mag.*, t. 7129.—Costa Rica, at Sabonilla, E. Shuttleworth. Flowered at Kew in October, 1884.

K. MURICATA, Rolfe. *Pleurothallis muricata*, Schltr., in *Fedde Rep. Nov. Sp.*, x. p. 293.—Guatemala, near Coban, at 1500 m. alt. Turckheim, n. ii. 2392.

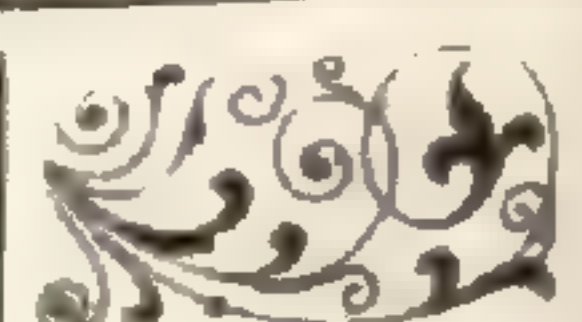
K. SORORIA, Rolfe. *Pleurothallis sororia*, Schltr., in *Fedde Rep. Nov. Sp.*, x. p. 294.—Costa Rica, in forest of Rancho flores, at 2043 m. alt., Pittier, n. 2157.

K. RUFESCENS, Rolfe, n. sp.—The plant exhibited by Messrs. Sander & Sons has been described under this name. It bears a general resemblance to *K. Tunguraguæ*, but is smaller in all its parts. The leaves are oblong, fleshy, and about four inches long, and the flowers, which are nearly $\frac{3}{4}$ inch long, are reddish orange, with some dusky dots on the lateral sepals, and some similar stripes on the dorsal one. Messrs. Sander are not absolutely certain about the habitat, but they think it is one of Forget's Peruvian plants.

R. A. ROLFE.



ERIODES BARBATA.



AN inflorescence of a very curious Orchid appeared in the group exhibited by Messrs. Stuart Low & Co. at the R.H.S. meeting held on October 26th. We immediately recognised it as that of *Eria barbata*, Lindl., which elicited the remark that the plant bore no resemblance to an *Eria*. This is quite correct. It is the plant that was described by Lindl., in 1857, under the name of *Tainia barbata*, the author remarking: "We received a living specimen of this curious thing from Messrs. Loddiges last October. It is a native of the Khasia Hills, where Griffith found it on trees of *Gordonia* on the descent of the Suniassu Valley. We

also have it through the kindness of Mr. Veitch from Mr. Thomas Lobb, who met with it in the same region." It was described as a terrestrial plant with the ovate green bulb of *Ania latifolia*, the plated leaves of a *Bletia*, and the flowers inverted, and borne on a long loose lateral downy panicle, two feet or more long, and yellowish streaked with brown.

Griffith was quite puzzled with the plant, which he described and figured in 1848 under the single word "*Eriodea*," to indicate a certain resemblance to *Eria* in floral structure. Reichenbach carried the idea further by calling it *Eria barbata*, under which name it has long been known, though Sir Joseph Hooker expressed a doubt as to its belonging to *Eria*, while more recently Kränzlin has returned it to *Tainia*, where it is equally out of place. The fact is, it is quite distinct, and we have long believed that the best way to deal with it is to make a new genus for its reception. For this the name *Eriodes* has been selected, as indicating as closely as possible Griffith's idea of its affinity.

In habit *Eriodes* closely resembles *Spathoglottis*, but is characterized by its inverted flowers, its narrow, strongly reflexed sepals and petals, its narrow, strongly recurved mobile lip, its sharply angled column, and in its having the eight pollinia attached in two fours on a broad transverse gland. One very curious character of the plant has been observed from the outset, namely, an irregular line of numerous flat brown hairs on one side of the pedicels. They were thus described by Lindley: "On the flower stalks, mixed with soft down, are numerous very remarkable flat brown bodies, which Griffith calls 'ramenta'; they are really simple cells, filled with brown chromule even when fresh, and with the form of a common paper knife blade; somewhere near the middle is a distinct cytoblast with fine grumous matter surrounding it." And Reichenbach states that they show beautiful areolæ under a high magnifying power. Their position is curious. They occur in a line along the upper side of the untwisted pedicel, and extend from the base to beyond the middle, stopping when the ovary proper is reached. Their function is unknown.

Besides the original habitat on the Khasia Hills, the species was collected at Shillong, by Mr. C. B. Clark, at 5000 feet altitude, while the source of a garden plant is said to have been Upper Burma. We have seen it from several collections. The following are references to descriptions and figures:—

ERIODES BARBATA, Rolfe, n. gen.

Tainia barbata, Lindl., in *Gard. Chron.*, 1857, p. 68.

Eria barbata, Rchb. f., in *Walp. Ann.*, vi. p. 270; *Saund. Refug. Bot.*, ii. t. 114; *Hook. f. Fl. Ind.*, V. p. 803.

Eriodea, *Griff. Itin. Notes*, p. 82; *l.c. Pl. Asiat. Rar.*, t. 302.

R.A.R.

NOTICE OF BOOK.

Orchidaceæ. Illustrations and Studies of the Family Orchidaceæ, issued from the Ames Botanical Laboratory, North Easton, Mass. By Oakes Ames, Director of the Botanic Garden of Harvard University. Fascicle V. Boston. The Merrymount Press, 1915.

THE fifth volume of this interesting work is devoted to an enumeration of the genera and species of Philippine Orchids. The group has received great attention since the American occupation, for, in addition to the regular explorations carried on by the Botanical Department of the Bureau of Science at Manila, several collectors have made a special search for Orchids. There are, however, still large areas botanically unknown from which accessions will probably be made. Among the plant families that constitute the vegetation of the Philippine Islands the Orchidaceæ is said to be the richest in representatives, exceeding the Rubiaceæ, the next largest family, by several hundred species. The number of species enumerated is 723, distributed among 101 genera, and 119 of the species are described as new. The Orchids of the Philippines are closely allied to that of Celebes, Java, and the Malay Archipelago, but the number of endemic species is very large, and it is estimated that approximately ninety per cent. are endemic. The three largest genera are *Bulbophyllum*, with 86 species, *Dendrobium*, with 83, and *Dendrochilum*, with 69, the latter constituting about half the known species. None of the genera are endemic. The arrangement of the species is alphabetical, which has the disadvantage of separating those that are closely allied. In the case of *Dendrobium*, however, a short key to the sections is added, with an enumeration of the species they contain.

A good many Orchids have been erroneously recorded from the Philippines at different times, and allusion to these is made in the preface, the records arising largely from wrong identifications in an enumeration of Philippine Orchids by Naves, and the inclusion of a list by Boxall which was never intended as a record of plants actually found there. Other errors arose through the absence of localities from a number of plants collected by Cuming, which have been wrongly attributed to the Philippines, and the source of these in a few cases still remains doubtful. It is curious to note that *Cypripedium Fairrieanum* was included by Naves as a native of the Philippines.

The work includes a sketch map, showing the remarkable configuration of the Philippine group, and its position with respect to the rest of the Malay Archipelago. No other figures appear in the volume. It is an important contribution to our knowledge of the Orchids of the Philippines.

 CATTLEYA LADY-VEITCH.

WE have now pleasure in giving a figure of the chaste and beautiful hybrid, *Cattleya Lady-Veitch*, for which Messrs. Sander & Sons received a First-class Certificate at the R.H.S. meeting held on September 28th last, as recorded at page 310. It was raised by them from *C. Lueddemanniana alba* × *Warneri alba*, and it will be noticed that besides preserving the



Fig. 41. CATTLEYA LADY-VEITCH.

albinism of both parents, it has also an excellent shape, and that the petals have retained much of the breadth that is so characteristic of the latter parent. The colour of the flower is pure white, with a light yellow disc to the lip, on which may be traced a lighter radiating venation. It is a valuable addition to the ranks of albino *Cattleyas*. The figure represents the flower about two-thirds natural size, and we are indebted to Messrs. Sander & Sons for the photograph.



CYPRIPEDIUM SANDERIANUM.



A CURIOUS mistake with regard to the history of *Cypripedium Sanderianum* appeared in an Obituary notice of the late Mr. Edwin Lonsdale, cited from the *Florists' Exchange*, at page 306 of our last issue. It was stated that the species was found in a batch of *C. Lawrenceanum*, and was sold to Messrs. Sander & Sons, St. Albans. Messrs. Sander inform us that this is quite erroneous. Some thirty years ago *C. Stonei platyænum* was a great desideratum, and Mr. F. Sander, not then realising that it was a freak, despatched Forsterman to Borneo to search for it. It is hardly necessary to state that he did not succeed, but he found and sent home instead the striking novelty that is the subject of the present note. It flowered at St. Albans, for the first time in Europe, in the spring of 1886, and was described by Reichenbach (*Gard. Chron.*, 1886, i. p. 554), the author remarking: "This is an extraordinary surprise as well as a beauty from the Malayan Archipelago." Nothing was then stated as to the circumstances of its discovery, but when somewhat later it was figured in *Reichenbachia* (ser. 1, i. p. 7, t. 3) it was said to have been discovered by J. Forsterman. The circumstances would indicate the locality as Borneo, and more definite information came in 1894, when Dr. G. B. Haviland sent from Borneo a dried inflorescence to Kew with the record: "From the Resident's Orchid house, probably from Baram originally." There is also a dried specimen in the Herbarium of the late W. H. Gower (purchased by Kew in 1895) with the word "Borneo" written on the ticket, though a pen has afterwards been run through it.

C. Sanderianum is an ally of *C. philippinense*, but is markedly different in its much attenuated petals, which sometimes reach a length of as much as twenty inches, as well as in colour and other details of the flower. It is a Warm house species, and a very striking object when well grown. About a dozen hybrids from it are now known.

The species has been unfortunate as regards its records, for in the first supplement to the *Index Kewensis*, compiled at Brussels by Durand, it is said to be an artificial hybrid and, although the *Reichenbachia* plate is given, the original record is incorrectly cited. The fact is, it has been confused with *C. Saundersianum* (caudatum $\times$ Schlimii), but here again both the author and the original reference are wrongly cited (see note on page 346).

It is curious to note that the preceding reference in the *Index Kewensis* is also erroneous, for the *C. Sanderæ* there given as a synonym of *C. Sanderianum* is the well-known *C. callosum Sanderæ*.

 CALENDAR OF OPERATIONS FOR NOVEMBER.

By W. H. WHITE, for many years Orchid Grower to the
late Sir Trevor Lawrence, Bart., K.C.V.O.

NOVEMBER is generally considered the period at which the winter treatment of Orchids should commence, and during this time it is necessary to afford careful study in everything appertaining to the future welfare of the plants. The great difficulty is to balance the four great agents ruling plant life—light, heat, moisture, and air—so that those Orchids which are at rest are not unduly excited to start prematurely, and that those growing may be encouraged to mature sound healthy growth. Natural light being beyond our control, while heat, moisture, and air are not, it follows that we must use the three in proportion to what we get of the other. Thus during the winter months the temperature of the various houses on light bright days should be a few degrees higher than on dull heavy days, and on every day the highest temperature of any house should be between the hours of twelve and two, while the lowest should be during the hours of darkness. The difference between these two extremes should be from five to ten degrees when the temperature is maintained by fire-heat, and several degrees higher may be allowed during sunshine. And, as mentioned in a former Calendar, sudden fluctuations of temperatures should be avoided as much as possible, for many tender Orchids under cultivation are easily injured thereby. These are important matters, but difficult of accomplishment at times, owing to our changeable weather, and the error is quite as often in having too much heat in the pipes as in having too little.

These remarks should be remembered by the young beginner, for with a range of ten degrees between the two extremes of the winter temperature the plants generally should be quite safe. The following temperatures should be aimed at: East Indian house, 60° to 70°; Cattleya house, 55° to 60°; Mexican and Intermediate houses, 50° to 60°; Cool house, 45° to 55°. Any of these divisions might fall a degree or two lower for a short period, at times when, through very severe frost, much fire-heat is in use, causing the atmosphere of the houses to be more than ordinarily dry. Undoubtedly, for the next few months to come, the heating apparatus will have to afford most of the warmth in the various houses, and should be used carefully, as an excess of fire-heat, if persisted in for long together, is frequently the cause of injury to the plants, and of the increase of insect pests, particularly thrips and red spider. Cockroaches also multiply very quickly when much fire-heat is being used, and Orchid-growers know only too well the injury these voracious pests do to the succulent roots, flower spikes, and tender growths of the plants.

The injurious effects of artificial heat during unusually cold weather, when the hot-water pipes have to be kept extra warm, should be as far as possible counterbalanced by the admission of fresh air, and the use of a moderate amount of water in damping the paths, stages, and immediately under the pipes, thus moderating the dryness of the air in the house. In order to economise heat during spells of cold frosty weather, it is good practice to cover the houses with canvas, garden mats, &c. The mats should be neatly and strongly tied at the ends, and several may be sewn together in different lengths as required for each house. These may easily be rolled along the lower part of the roof, which is generally the coldest part of the house, putting them on at dusk and taking them off at day-break. As a safeguard in cold windy weather, these coverings should be made secure, so that they cannot be blown off, and when wet or frozen they should be thoroughly dried before using them again. Some growers leave their open lattice wood blinds on all the winter, in order that when cold nights come they may be let down over the glass, also over the mats, which not only assists to keep them firmly fixed in their places, but are a great help in keeping up the temperature of the house. It is not advisable to employ the usual canvas roller blinds for this purpose—although they too are useful in maintaining the warmth inside—for it may happen in very cold weather that they become frozen so stiff that they cannot be rolled up again for several hours after day-break, the plants thus losing a considerable amount of light which, as previously mentioned, is an agent they never get enough of during our long dull winters.

If there be any large deciduous trees near to the Orchid houses, they will probably, ere this, have discarded their foliage, and immediately the leaves have fallen, the glass of the houses, both inside and out, should be well washed, and at the same time see that all the laps in the glass are also freed from dirt, for when these laps are thoroughly clean more air can penetrate, thus causing a nice refreshing feeling in the atmosphere inside. The woodwork should likewise be scrubbed, and if the walls are lime-washed, it will greatly assist in increasing the light in the houses. While the plants are being removed and re-arranged they should all be carefully examined for insects. Sponge the leaves with clean soft water, wash the pots, stages, &c., and keep everything about the plants trim, clean, and tidy. In ventilating the houses through the winter months the aim should be to admit as much fresh air as possible without chilling the plants. In low-roofed houses this is best done by opening those ventilators on the ground line, and these should be near, or opposite to the hot-water pipes. In mild weather the top ventilators in lofty houses may be opened slightly, there being less danger here of the plants getting chilled. When very cold or east winds prevail it is best to keep the top lights closed, and to regulate

the temperature wholly by means of the lower ventilators, opening those on the leeward or opposite side to the wind.

CATTLEYS.—At the present time *Cattleya Bowringiana*, *C. labiata*, and many of their hybrids form the chief attraction in this house, and nearly all of them are well worth growing, their flowers being of a rich colour and producing an excellent effect, especially by artificial light. After flowering these plants should be arranged in a cool, light position in the house, and where air will circulate freely around them. While at rest much care is needed in watering, for if the potting materials be kept constantly moist, or made too wet when the plants are watered, it will oftentimes cause the pseudobulbs to turn black and decay. Repotting may be done so soon as new roots are seen pushing out from the base of the last-made growths. Plants that have made their full complement of roots, either before blooming or when in flower, should be repotted soon after growth recommences. The earlier-flowering *C. Gaskelliana*, although its roots are growing and extending, should not be disturbed by repotting at this season, but in spring, when the new growths will appear. *C. Lawrenceana* is generally late in starting to grow, and, owing to lack of sunlight and natural heat, makes comparatively slow progress; it is therefore advisable to elevate each plant well up to the roof glass, where they may obtain all the sunlight possible, the smallest plants being suspended near to the roof. Whilst making their growth during winter, a rather dry position in the Warm house is a suitable place for them, but at no time must they be kept saturated with water, as the young breaks are apt to decay from this cause, therefore a great deal of discretion must be used. When the new growths are fully matured very little water will be needed to keep the pseudobulbs plump, a slightly increased quantity being applied when the flower spikes begin to push up through the sheaths. Plants of *C. Percivaliana*, having completed their pseudobulbs, should be kept moderately dry at the root, over-dryness causing either abortive flowering or deformed flowers. Plants of this species should also be raised well up to the roof glass.

DISAS.—*Disa grandiflora*, *racemosa*, and the hybrids, *Veitchii*, *langleyensis*, *kewensis*, *Premier*, &c., are now sending up their young shoots, and will require to be repotted. When breaking up large crowded pots or pans, of these plants, great care is necessary, or many of the roots, which are extremely brittle, will be ruined. The strongest breaks, which are to be grown on to bloom first, should have all those long white root-like offsets cleared from them. Such offsets, if kept, will make tubers and roots for themselves, and thus increase the stock, but in their earlier stages they are dependent upon the same tubers which support the flowering growths. In re-making up specimens, select growths of uniform size, so that they will all flower together, and thus make a good show. Where space is of

little consequence it is a good plan to pot the strongest growths singly, using rather smaller pots, then, after the plants have made some progress, and are rooting freely, they may be transferred with but little root disturbance into pots several sizes larger. Ample drainage must be given to carry off the large supplies of water these plants always require, and the bulk of the compost for Disas should be sandy peat and sandy fibrous loam, to which may be added some chopped sphagnum moss, coarse sand, and broken crocks.

Although in some places Disas will thrive in cold frames, and probably in the extreme south-west even without that protection, yet they appreciate the atmosphere of the Cool houses, especially when placed where they can obtain a good clear light, without direct sunshine. In watering keep the surface of the compost just moist until there are numerous roots, then the supply should be considerably increased, and a few heads of living sphagnum moss pricked in over the surface of the compost, so that an equable degree of moisture about the roots and growths may be maintained. Open wood-work staging is not to be recommended for these plants to stand on, there being insufficient moisture in close proximity to the plants. It is more suitable to use thick slates, which should never be allowed to become quite dry; even the last thing at night it is good practice to pour water over them. Should thrips or green fly attack the shoots, they must be immediately destroyed, or the plants will soon decline in vigour. For green fly use brush and sponge, and for thrips lay the plants down on their sides every few weeks and syringe them with a solution of warm soft soapy water, but on no account must these plants be subjected to the fumes of the vapouriser. Plants of *D. Luna*, *D. Veitchii*, and others that were repotted several months ago must now receive abundance of water at the roots, and if they were potted into small pots may now be safely transferred into larger receptacles.

LYCASTES.—*L. Skinneri* and its variety *alba* will now be fast finishing up their growth, and soon be sending up flowers. *Lycastes*, while growing, require abundance of water, but at this particular time they should be kept somewhat drier. On no account must they be allowed to shrivel for want of water, but the little check they receive from having less will cause them to send up their flowers more together, instead of by two or three at a time. These *Lycastes* are best potted in the spring when growth commences. Through the winter they are quite content with the Cool house temperature, so long as it does not descend much below 50°. The foliage of these plants is too often met with far more yellow than green, and one cause is loss of roots through over-watering, and another a small species of red spider which feeds upon the undersides of the leaves. The remedy for this is to sponge them over periodically. Some of the varieties of *L. lanipes*—an

Intermediate house plant—are well worth growing, the plants of some varieties being nearly pure white, many in number, and delightfully scented during the night. Plants of these species will now be flowering in various collections. Water must be given less frequently to *L. leucantha*, *aromatica*, *Deppei*, and *cruenta*.

PLEIONES.—The Pleiones mentioned in a former Calendar will in a few weeks' time have passed out of flower, and immediately after this the new roots will begin to push out from the green shoots from which the flowers have sprung. After the flowers are over the plants should be repotted. Shallow pans that can be suspended well up to the light are quite suitable, and ample drainage is necessary, as the plants need plenty of water when growing freely. The potting compost should consist of fibrous loam, chopped osmunda fibre, and sphagnum moss, in equal parts, well mixed with broken crocks and coarse silver sand. After being repotted the plants should receive little or no water for several weeks, and afterwards only enough to keep the compost moist, but when in full growth afford water copiously. A light airy position in the Intermediate house is the place for them. *Pleione humilis* and *P. Hookeriana* will now have finished their growth, so keep them suspended in the Cool house, and water often enough to keep the soil just moist. Their flowering season is February. The rare *P. yunnanensis* should be treated likewise.

SOBRALIAS.—The majority of the Sobralias will now be making many large roots from the base of their young growths, and in order to obtain strong flowering growths these roots must have something nourishing to grow in. All pot-bound plants should at once have a liberal shift, and large unwieldy specimens may be divided. Drain the pots to about a quarter of their depth, pot moderately firmly with the mixture recommended for the Pleiones. After root disturbance afford water carefully, and when well established avoid dryness at any time. Grow the plants in a light position in the Intermediate house. It is as yet a little too early in the season to remove this year's flowering breaks, but as soon as the leaves on those stems change colour, cut them down to the roots, afterwards tie out the young growths clear of each other, so that light and air may pass freely between them.

CYMBIDIUMS.—Strong plants of *C. Lowianum*, *C. Lowianum-eburneum*, and others that have made their growth and are not showing their flower spikes, should be kept for some weeks longer on the dry side, otherwise they will start away into growth, and fail to produce their flowers. Those already showing their spikes should receive every encouragement. In either case keep the plants on the lightest side of the Intermediate house, with their foliage well up to the roof glass. Pot-bound specimens are more likely to bloom than those which were repotted in the spring.

CALANTHES.—As the pseudobulbs of the early-flowering *Calanthes* of the *C. Veitchii* section are now fully grown, and the bloom spikes are pushing up, a moderate amount of water must be afforded till all the flowers are expanded, when it may be gradually withheld. From the present time no more manure water is necessary for these plants, but a little may still be afforded to those of the *C. Regnieri* section till their growths are completed. When the *Calanthes* begin to open their flowers put them together in one part of the house, where it is possible to keep their immediate surroundings somewhat dry. The *Cattleya* house is a suitable place for them when the flowers commence to open, as those that open in the lower temperature will fade less quickly when cut than if opened in their growing quarters.



RODRIGUEZIA SECUNDA.



AN inflorescence of this pretty little rose-coloured Orchid has been sent from the collection of G. Hodgson, Esq., The Grange, Hemsworth, Wakefield. It is said to have been gathered in Venezuela, at 1000-2000 feet elevation. It is a very old garden plant, and before the advent of so many showy hybrids was deservedly popular, though it seems to have become rare of late years. It was described and figured a century ago (*H.B.K. Nov. Gen. et Sp.*, i. p. 367, t. 92), from materials collected in the neighbourhood of Carthagena, where it was found growing on the trunks of the Calabash tree. It was introduced to cultivation about the year 1818, from Trinidad, and was figured some seven years later (*Bot. Reg.*, t. 930), by which time it had two synonyms, for Messrs. Loddiges, who also obtained it from Trinidad, figured it as *R. lanceolata* (*Bot. Cab.*, t. 676), mistaking it for Ruiz & Pavon's Peruvian plant of that name, and shortly afterwards it was again figured as *Pleurothallis* (?) *coccinea* (*Hook. Exot. Fl.*, ii. t. 129). It is a widely diffused species, ranging from Panama, St. Vincent and Trinidad to Colombia, Guiana, and Brazil. In Guiana it seems to be very widely diffused, and, according to the late Mr. E. S. Rand, it is very common around Para, Brazil, the Mango trees being full of it, and it is almost the only Orchid found within the city itself (*Veitch Man. Orch.*, ix. p. 175). It also varies in colour from pale to deep rose, and the variety *sanguinea* represents a dark-coloured form that the brothers Schomburgk found growing on the banks of the Demerara River. The plant may be grown in well-drained pans or baskets suspended from the roof of the Intermediate house, and is very attractive when seen in good condition, its one-sided racemes being produced very freely. R.A.R.

CYPRIPEDIUM FAIRRIEANUM.

It may be remembered that some time ago a note of warning was sounded by Mr. E. H. Woodall respecting a decline of vigour in plants of this beautiful *Cypripedium* (*O.R.*, xxii. p. 38), and it is with the greater pleasure



Fig. 42. CYPRIPEDIUM FAIRRIEANUM AT BRIDGE HALL, BURY.

that we call attention to the fact, recorded on page 244, that a fine batch of plants from the collection of O. O. Wrigley, Esq., Bridge Hall, Bury, was exhibited at Manchester on October 21st, carrying up to seven flowers on a plant, and some of them twin. The annexed figure represents a group that flowered there some six years ago, and the vigour seems to have been fully maintained, for on the last occasion a Cultural Certificate was

deservedly awarded. It is probably a question of providing suitable treatment, and the method followed is described by Mr. Rogers. The compost consists of about equal parts of peat and loam, with a good sprinkling of tufa broken up to about the size of peas, with the dust also included. The pots are also drained with tufa, and a few heads of sphagnum are pricked into the compost after potting. The plants are grown in the same house as *C. insigne*, and are watered freely during the summer, and syringed in the afternoon during hot weather. Mr. Wrigley's remark that the plants are pictures of health is fully borne out by the photograph, and their continued success must be particularly gratifying in view of the previous history of the species.

Mr. Woodall, to whom reference is made above, has the good fortune to be able to grow it in the open air at Nice, and finds that it thrives as well as *C. insigne*, at the foot of an olive tree, with only some sheltering shrubs to screen the plants from summer suns and winter frosts. As this was after five years' experience the success of the treatment should be well assured. Probably the conditions described approximate more nearly to those of its native home than those under which it is sometimes placed in our collections.



SOCIETIES.



ROYAL HORTICULTURAL.

THE usual fortnightly meeting was held at the Royal Horticultural Hall, Vincent Square, Westminster, on October 12th, when there was a good display of Orchids for the season, and the awards consisted of five medals, one Award of Merit, one Seedling Commendation, and one Cultural Commendation.

Orchid Committee present: J. Gurney Fowler, Esq. (in the Chair), J. O'Brien (hon. sec.), Gurney Wilson, W. Bolton, S. W. Flory, A. Dye, W. P. Bound, W. H. Hatcher, H. G. Alexander, W. Cobb, T. Armstrong, A. McBean, J. Charlesworth, Pantia Ralli, C. H. Curtis, R. A. Rolfe, and Sir Harry J. Veitch.

Dr. Miguel Lacrose, Roehampton (gr. Mr. Creswell), received a Silver Banksian Medal for a group of two dozen well-grown plants of *Odontoglossum grande*, which were arranged in a setting of maiden-hair fern, making a very effective display.

J. Gurney Fowler, Esq., Brackenhurst, Pembury (gr. Mr. J. Davis), sent a few good things, including *Cattleya Venus* Fowler's var., bronzy yellow with a magenta-crimson, Iris-like lip, a good plant of *Odontonia brugensis* var. Eileen, *Læliocattleya Haroldiana* Monkholme var., a large

and richly-coloured form, and a promising seedling from *Læliocattleya* St.-Gothard $\times$ *Cattleya* Empress-Frederick, with two fine purple flowers.

R. G. Thwaites, Esq., Chessington, Streatham (gr. Mr. Hannington), sent *Odontioda* Vulcan (Odm. *Clytie* $\times$ *C. Noëtzliana*), with dark crimson flowers, and *Cattleya* Venus var. Her Majesty, a fine thing with yellow sepals and petals, and a broad, rosy crimson, Iris-like lip.

Messrs. Charlesworth & Co., Haywards Heath, staged a fine group, including *Odontoglossum grande aureum*, with a twin flower at the apex of the spike, good examples of *O. crispum xanthotes*, *Lambeauianum*, Jasper, and several others, the beautiful *Brassocattleya Veitchii* var. Queen Alexandra, B.-c. *Maroniæ*, the rare *Catasetum Randii*, the albino *Dendrobium Phalænopsis Rothschildianum*, four well-grown *Odontioda Goodsoniæ*, *O. Constance* (Odm. *Clytie* $\times$ Oda. *Bradshawiæ*), most like the former, *Calanthe Veitchii*, *Læliocattleya Serbia* (L.-c. St.-Gothard $\times$ *C. Enid*), good examples of L.-c. *Thyone* and *Colmaniana*, *Cattleya Dusseldorfii Undine*, *iridescens*, and *Fabia*, *Cypripedium Sanactæus*, and other good things (Silver Flora Medal).

Messrs. Sander & Sons, St. Albans, staged a fine group, the special feature of which was a series of the showy *Cattleya Mantinii* and various other *Cattleyas* and *Læliocattleyas*, *C. Acis* (*Maronii* $\times$ *Dowiana aurea*) being very attractive, and L.-c. *Balmoral* (*C. Hardyana* $\times$ L.-c. *bella*), a fine thing most like the former but with a more open lip. We also noted an example of *Odontonia brugensis* with a branched spike, *Odontoglossum Thisbe* (*elegans* $\times$ *crispum*), *Bulbophyllum hirtum*, *Cirrhopetalum refractum* and *appendiculatum*, *Mystacidium distichum*, *Cœlogyne brunnea*, *Cypripedium Gloria* (*Gaston Bultel* $\times$ *Priam*) and other interesting things (Silver Flora Medal).

Messrs. Hassall & Co., Southgate, staged a small group, including four good plants of *Phalænopsis Esmeralda*, *Cattleya Naidia* (*Sybil* $\times$ *Iris*), *Moiræ*, *Adula*, and *Dusseldorfii Undine*, good examples of *Brassocattleya Maroniæ*, *Læliocattleya luminosa*, *Odontioda Zephyr*, *Cypripedium A. de Lairese*, and a promising hybrid from *C. Bryan* $\times$ *callosum*, with well spotted petals (Silver Banksian Medal).

Messrs. Stuart Low & Co., Jarvisbrook, Sussex, staged a good group, including forms of *Cattleya Gaskelliana* and var. *alba*, *C. Warscewiczii*, *Hardyana*, *Iris*, the brilliant *Sophrocattleya Doris*, *Odontoglossum grande*, *Vanda Kimballiana*, *cœrulea* and the pretty natural hybrid *V. Charlesworthii*, *Oncidium Forbesii*, *varicosum* and *oblongatum*, a well-flowered specimen of *Masdevallia Lauchiana*, several fine plants of *Lælia pumila*, and other good things (Silver Banksian Medal).

Messrs. Flory & Black, Orchid Nursery, Slough, sent a fine example of *Cattleya Peetersii*, the chaste *Lælia pumila alba*, and *Cœlogyne Mooreana*.

AWARD OF MERIT.

CATTLEYA AJAX VAR. PRIMROSE DAME (*Armstrongiae* × *Dowiana aurea*).—A very beautiful form, having clear primrose yellow sepals and petals, and the very undulate lip deeper yellow, especially on the disc, with some dark red lines at the base. The purple of *C. Loddigesii* is quite eliminated. Exhibited by Messrs. Armstrong & Brown, Tunbridge Wells.

SEEDLING COMMENDATION.

ODONTOGLOSSUM VICTORY (*O. crispum* The Baroness × seedling unrecorded).—A small seedling, bearing its first flower, which is excellent in shape, having well rounded segments, broadly margined with white, with the central area or a shade of reddish brown, and the crest of the lip yellow. Exhibited by Messrs. Armstrong & Brown.

CULTURAL COMMENDATION.

CATTLEYA BROWNÆ GATTON PARK VAR. (*Bowringiana* × *Harrisoniana*).—To Mr. J. Collier, gardener to Sir Jeremiah Colman, Bart., Gatton Park, Reigate, for a splendidly-grown specimen, with pseudobulbs about three feet high, and two spikes of thirteen and fourteen rich purple flowers.

At the meeting held on October 26th, there was again a good display of Orchids, among which autumn-flowering Cattleyas were conspicuous. Six medals were awarded for groups, besides which one First-class Certificate and one Award of Merit were given.

Orchid Committee present:—J. Gurney Fowler, Esq. (in the Chair), J. O'Brien (hon. sec.), Sir Harry J. Veitch, Sir Jeremiah Colman, Bart., Stuart Low, R. A. Rolfe, F. J. Hanbury, P. Ralli, A. McBean, W. Cobb, J. Charlesworth, J. Cypher, H. J. Alexander, C. H. Curtis, S. W. Flory, W. Bolton, and Gurney Wilson.

J. Gurney Fowler, Esq., Brackenhurst, Pembury (gr. Mr. J. Davis), received a Silver Flora Medal for a choice group, including two fine plants of *Læliocattleya luminosa*, one with a spike of five flowers, L.-c. *Numidia* (*C. Empress-Frederick* × L.-c. *Golden-Oriole*), bearing a spike of four flowers of a bronzy rose shade, with some yellow veining on the lip and two yellow blotches on the disc, *Cattleya Mantinii nobilior*, *C. labiata alba*, *C. l. Prince of Wales*, with a spike of four white flowers, *C. Falco* (*Dupreana* × *Dowiana aurea*), *C. Fabia alba*, two good *Odontoglossum crispum*, and *Brassocattleya Pallas* (B.-c. *Veitchii* × *C. Warscewiczii*).

Sir Jeremiah Colman, Bart., Gatton Park, Reigate (gr. Mr. Collier), sent a few choice things, including the charming *Dendrobium bigibbum* Lady Colman with two spikes of blush white flowers, three forms of *Cattleya Drapsiana*, differing much in colour, *C. Alcimeda cœrulea*, with the front of the lip slate-blue, *C. Beryl* (*Wendlandiana* × *Hardyana*), and *Læliocattleya Lucasii* Gatton Park var.

Walter Cobb, Esq., Normanhurst, Rusper (gr. Mr. Salter), sent a plant of *Cattleya Fabia Vigeriana*, bearing two large flowers of the deepest purple with some yellow veining on the lip.

Elizabeth, Lady Lawrence, Burford (Orchid grower Mr. Swindon) sent *Læliocattleya Anzac* (Clive $\times$ *bletchleyensis*), bearing two rosy flowers of good shape with a darker lip.

H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. F. W. Thurgood), sent *Brassocattleya William-Pitt*, with large rosy flowers.

Pantia Ralli, Esq., Ashtead Park, Surrey (gr. Mr. Farnes), showed *Sophrocattlælia ashteadensis* (S.-c. *pumeximia* $\times$ *C. Bowringiana*), bearing a considerable resemblance to a dwarf *Cattleya Mantinii*.

R. G. Thwaites, Esq., Chessington, Streatham (gr. Mr. Hannington), sent a bright scarlet form of *Sophrocattleya Blackii*.

Messrs. Charlesworth & Co., Haywards Heath, staged a fine group of well-grown plants, including *Læliocattleya Salonika* (L.-c. *Fascinator* $\times$ *C. Warscewiczii* Frau Melanie Beyrodt) bearing three beautiful white flowers with a zone of deep purple on the front of the lip and some yellow in the throat, L.-c. *Thyone* and *Colmaniana*, *Cattleya Basil*, *C. Fabia* and var. *alba*, a beautiful example of *Oncidioda Penelope* with a fine panicle of flowers, *Odontoglossum Thwaitesii* (Rossii $\times$ *Harryanum*), *O. eximium*, *O. crispum xanthotes*, and a fine blotched form bearing two spikes, *Brassocattleya heatonensis*, *Trichopilia Gouldii*, *Odontioda Euterpe*, and others (Silver Flora Medal).

Messrs. Hassall & Co., Southgate, staged a group of choice things, including good examples of *Cattleya Fabia* and var. *alba*, *C. iridescens*, *Sylvia*, *Beatrice*, *Hardyana*, *Naidia* and *Peetersiana*, *Læliocattleya Ophir* and *luminosa*, *Sophrocattleya Cleopatra*, *Brassocattleya Maroniæ*, *Cypripedium insigne Sanderæ*, and a few others (Silver Flora Medal).

Messrs. Stuart Low & Co., Jarvisbrook, staged a fine group, including examples of *Vanda cœrulea*, *Sophrocattleya Doris*, *Læliocattleya Black Prince*, *Cattleya Fabia*, *Boadicea*, *C. Peetersii perfecta*, an inflorescence of the remarkable *Eria barbata*, and some fine plants of *Oncidium varicosum* at the back (Silver Flora Medal).

Messrs. J. & A. McBean, Cooksbridge, staged a choice group, including some fine forms of *Cattleya Fabia*, *Cymbidium Schlegelii* and *Doris*, brilliant forms of *Odontioda Diana* and *Lambeauiana*, *Odontoglossum Ruby* var. *Anita*, and other good things (Silver Flora Medal).

Messrs. Sander & Sons, St. Albans, staged a fine group, the feature of which was a number of *Cattleya Fabia*, *Mantinii*, and a few other hybrids. We noted also *Miltonia spectabilis Moreliana*, a well-flowered *Cirrhopetalum mundulum*, *C. appendiculatum*, *Maxillaria cucullata*, *Cœlogyne ochracea* and *brunnea*, *Eria floribunda*, and other good things (Silver Flora Medal).

Messrs. Flory & Black, Orchid Nursery, Slough, showed *Cattleya Peetersii*, *Læliocattleya Soulangé* (L.-c. *Lustre* × *C. Dowiana aurea*), two good forms of L.-c. *luminosa*, and *Odontoglossum armainvillierense*.

FIRST-CLASS CERTIFICATE.

CATTLEYA LUEGEÆ FOWLER'S VAR. (*Dowiana aurea* × *Enid*).—A brilliant variety, bearing a spike of four large and richly-coloured flowers, recalling much *C. Hardyana*. Exhibited by J. Gurney Fowler, Esq.

AWARD OF MERIT.

CATTLEYA MOIRA VAR. *RUBRA* (*Fabia* × *Mantinii*).—A handsome thing, most resembling *C. Mantinii* in shape, but darker in colour, the sepals and petals deep rose-purple and the lip crimson purple, with some yellow veining in the throat. Exhibited by Messrs. Hassall & Co.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

At the meeting held at the Coal Exchange, Manchester, on October 7th, the members of Committee present were: Rev. J. Crombleholme (in the Chair), Messrs. J. Cypher, A. G. Ellwood, J. Evans, P. Foster, A. R. Handley, A. J. Keeling, J. Lupton, D. McLeod, L. Sander, W. Shackleton, S. Swift, H. Thorp, Z. A. Ward, and H. Arthur (Sec.).

A Gold Medal was awarded to W. R. Lee, Esq., Heywood (gr. Mr. C. Branch), for a magnificent group, consisting largely of well-grown *Cattleyas* and *Cypripediums*, among the latter being a fine series of *C. Maudiaë*, with *Odontoglossum crispum xanthotes*, and a fine collection of *Dendrobium Phalænopsis*.

A Large Silver Medal was given to R. Ashworth, Esq., Newchurch (gr. Mr. W. Gilden), for a fine miscellaneous group, in which some beautiful *Odontoglossums*, *Cattleyas* and allies were conspicuous.

Silver Medals were awarded to Mrs. R. le Doux, West Derby (gr. Mr. J. W. Fletcher); Col. J. Rutherford, M.P., Blackburn (gr. Mr. J. Lupton); J. J. Bolton, Esq., Pendleton (gr. Mr. J. Law), and Messrs. Sander & Sons, St. Albans, for good groups, in which autumn-flowering *Cattleyas* were well represented.

Interesting exhibits were also sent by O. O. Wrigley, Esq., Bury (gr. Mr. E. Rogers); S. Gratrix, Esq., Whalley Range (gr. Mr. W. W. Field); J. Hartley, Esq., Morley; Rev. J. Crombleholme, Clayton-le-Moors (gr. Mr. E. Marshall); Messrs. A. J. Keeling & Sons, Bradford; Messrs. Armstrong & Brown, Tunbridge Wells, and Messrs. Charlesworth & Co., Haywards Heath, several of which appear in the award list.

FIRST-CLASS CERTIFICATES.

Odontioda Charlesworthii Marlfield var., a large flower, intensely deep in colour, from Mrs. R. le Doux.

Cattleya Fabia var. *Rosendale*, a fine flower, from R. Ashworth, Esq.

Cattleya Peetersii alba West Point var. (labiata alba and Hardyana alba), flowers of good form, with white sepals and petals, and the lip brilliantly marked, from S. Gratrix, Esq.

Cattleya amabilis alba The Knowle var. (*C. Warscewiczii* Frau M. Beyrodt $\times$ labiata alba), flowers of excellent form and substance, with pure white sepals and petals, and the lip nicely marked, from J. Hartley, Esq.

Cattleya Peetersii Lee's var. (Hardyana $\times$ labiata), flowers very large, of good form and even colour, from W. R. Lee, Esq.

AWARDS OF MERIT.

Cattleya Britannia var. Melaine (L.-c. Canhamiana alba $\times$ *C. Warscewiczii* Frau M. Beyrodt): *Læliocattleya* Minnie de Larringa (*C. Fabia* $\times$ L.-c. Bola); *Odontoglossum eximium* album Marlfield var., from Mrs. le Doux.

Cattleya Ariel West Point var. (*Dusseldorfii* $\times$ *fulvescens*); *Cattleya Venus* West Point var. (*Iris* $\times$ *Dowiana aurea*), from S. Gratrix, Esq.

Odontoglossum illustrissimum var. Janua, from R. Ashworth, Esq.

Cypripedium Hildalgæ (*ciliolare* $\times$ *Goweri* $\times$ *bingleyense*), from the Rev. J. Crombleholme.

Odontoglossum J. J. Bolton (*crispum* $\times$ *amabile*), from J. J. Bolton, Esq.

Cattleya Ajax Orchidhurst var. (*Armstrongiæ* $\times$ *Dowiana aurea*), from Messrs. Armstrong & Brown.

At the meeting held on Thursday, October 21st, the members of Committee present were: Rev. J. Crombleholme (in the Chair), Messrs. R. Ashworth, J. J. Bolton, J. Cypher, A. G. Ellwood, J. Evans, P. Foster, A. R. Handley, A. Hanmer, J. Lupton, D. McLeod, W. J. Morgan, W. Shackleton, S. Swift, H. Thorp, Z. A. Ward, G. Weatherby and H. Arthur (Sec.).

Large Silver Medals were given to R. Ashworth, Esq., Newchurch (gr. Mr. W. Gilden), and Col. J. Rutherford, M.P., Blackburn (gr. Mr. J. Lupton), for fine groups of autumn-flowering Orchids, in which *Cattleyas* and allies were particularly well represented, with *Odontoglossums* and a few other well-grown things.

Silver Medals were awarded to Mrs. R. le Doux, West Derby; Messrs. Cypher & Sons, Cheltenham, and Messrs. Sander & Sons, St. Albans, for fine general groups.

O. O. Wrigley, Esq., Bury (gr. Mr. E. Rogers), staged a fine batch of over twenty plants of *Cypripedium Fairrieanum*, carrying up to seven flowers on a plant, some twin flowers (a Cultural Certificate being awarded to the gardener), with *Cattleyas Sylvia*, *Fabia alba*, and *armainvillierensis*.

A Bronze Medal was given to Messrs. A. J. Keeling & Sons, Bradford, for a small group.

Interesting exhibits were also sent by S. Gratrix, Esq., Whalley Range (gr. Mr. W. W. Field); H. J. Bromilow, Esq., Rainhill (gr. Mr. W. J. Morgan), and Messrs. J. & A. McBean, Cooksbridge, several of which received certificates, as shown in the following list:—

Messrs. A. J. Keeling & Son, Bradford, were awarded a Bronze Medal for a group.

Messrs. J. & A. McBean, Cooksbridge.

FIRST-CLASS CERTIFICATES.

Odontoglossum percultum var. *Mde. R. le Doux*, a fine thing, with heavily marked flowers, from Mrs. R. le Doux.

Cattleya Fabia var. *Samuel Gratrix* (*labiata* × *Dowiana aurea*), with very large flowers, of good solid colour, and a well-shaped spreading lip, from S. Gratrix, Esq.

Cattleya labiata var. *R. Ashworth*, a large well-set white flower, with orange lines in the throat, from R. Ashworth, Esq.

AWARDS OF MERIT.

Cattleya Lady Veitch var. *Mrs. S. Gratrix*, and *Odontoglossum Victory* var. *Gratrixiae* (*crispum* *Baronness* × *Unknown*), both from S. Gratrix, Esq.

Læliocattleya *Mrs. Geoffrey Tate* (*Orion* × *Golden Oriole*), from Mrs. R. le Doux.

Cattleya labiata *Lowiae*, from R. Ashworth, Esq.

Sophrocattleya *November* (*S. grandiflora* × *C. Portia magnifica*), from Mrs. J. & A. McBean.

AWARD OF APPRECIATION.

Odontioda leopardina (*O. beechense* × *Odm. Vuylstekei*), from R. Ashworth, Esq.

FIRST-CLASS CULTURAL CERTIFICATE.

To Mr. E. Rogers, gr. to O. O. Wrigley, Esq., for plants of *Cypripedium Fairrieianum*.



ANGRÆCUM BIRRIMENSE.—This interesting *Angræcum* has now flowered at Kew, the plant having been sent from the Birrim district, on the Gold Coast, by Mr. A. G. Miles, together with the dried specimen from which the species was described (Rolfe in *Kew Bull.*, 1914, p. 214). It is an ally of *A. Eichlerianum*, Kränzl., being very similar in habit, but has shorter leaves, and the flowers are well distinguished by the less dilated lip, and the straighter spur. The stem is somewhat elongated and climbing, and bears numerous obliquely oblong, somewhat bilobed leaves, and shortly-pedicelled, solitary flowers, with light green lanceolate sepals and petals, and a white lip, with a light yellow tinge on the disc. The allied *A. Eichlerianum*, Kränzl., was figured at page 120 of our twenty-first volume.



CATTLEYA LUEDDEMANNIANA ALBA.



AS we have given at page 329 a figure of the chaste and beautiful Cattleya Lady-Veitch, it may be interesting to add that of one of the distinguished parents, Cattleya Lueddemanniana alba, for comparison. The



Fig. 43. CATTLEYA LUEDDEMANNIANA ALBA.

different shape of the petals, and particularly of the lip, will be at once noticed, a feature of this species being the relatively narrow and elongated tube. In fact, the lip bears a smaller proportion to the rest of the flower than in many others of the labiata group. The colour may be described as delicate semi-transparent white, with a light yellow disc to the lip. The plant from which the photograph was taken was received from Venezuela

by Messrs. Hugh Low & Co., early in 1907, but the variety was known much earlier, having received a First-class Certificate from the R.H.S. in September, 1892. Its history was given at page 326 of our sixth volume (where, by a typographical error, the date 1892 is given as 1822). It is one of the rarest and most beautiful of albino Cattleyas.

CYPRIPEDIUM SAUNDERSIANUM.

THE confusion of the Bornean *Cypripedium Sanderianum* with the above artificial hybrid has been alluded to on page 326, and it may be interesting to give the history of the latter, for it has been the subject of a good deal of uncertainty. It was originally described by Reichenbach in 1886 (*Gard. Chron.*, 1886, ii. p. 654). The author then remarked:—

“When I was at Mr. Lee’s, in the most agreeable company of Mr. Day, we saw a splendid *Cypripedium* of unknown parentage obtained from Mr. W. Bull. It was indeed the first flower. The peduncle was not long, the bract not well developed, yet the plant looked as if in very good spirits, and no doubt it will prove to be an uncommon beauty. The one parent was probably *C. Schlimii*, or *C. Sedeni*, but the other one.” He was apparently unable to offer any suggestion, but, after describing it, he added: “This may one day be a favourite with Orchidists provided more specimens appear. I look forward to its improvement in future. I feel very pleased that it should be associated with the name of our lamented friend, a wonderful man in his ardent love of nature and its treasures.”

Nearly two years later another note appeared as follows: “A GOOD INVESTMENT.—We learn that Mr. William Bull, of King’s Road, Chelsea, has just purchased from the Leatherhead collection the rare *Cypripedium Saundersianum* for £300. It is interesting to note this at a time when there is a depression in many other things, for we hear this very plant was purchased by the recent owner in the autumn of 1883 for 50 guineas.”—*Gard. Chron.*, 1888, i. p. 113.

Definite evidence of the parentage was given in Mr. Bull’s Catalogue for 1888 (p. 8), where it is said to be a hybrid between *C. caudatum* and *C. Schlimii*, and the history was more fully given by Mr. Lewis Castle in the *Journal of Horticulture* (1888, i. p. 80). This account is here summarised:—

“The *Cypripedium*, which was noted last week as having been purchased by Mr. W. Bull for £300, was inadvertently given as *C. Sanderianum*, but it should have been given as *C. Saundersianum*, a quite distinct and remarkable hybrid. It is, however, so scarce and so little known that it deserves a special descriptive and historical note. I have been favoured

with most of the particulars by Mr. R. H. Measures, Mr. F. G. Tautz, and Mr. W. Bull, who are, I understand, the only possessors of this *Cypripedium* in England." . . . Mr. R. H. Measures has kindly favoured me with the following note: "Referring to our conversation at Protheroe's *re* *Cypripedium* *Saundersianum*, I find it was actually raised by Mr. Marshall of Enfield. Its parents are *Schlimii* and *caudatum*. From the habit of the plant I should think *Schlimii* is the seed parent. The plant is what we call a difficult one to grow. When Mr. Marshall's collection was sold the seedling went into the possession of the Royal Horticultural Society, and was at South Kensington some time between 1866 and 1869. When the Royal Horticultural Society's collection was sold the plant was lost sight of by me, but I believe it passed into the hands of Mr. Saunders. . . . From Mr. Saunders I believe it went into Mr. Bull's nursery, whence it passed into Mr. Lee's possession and there flowered, a flower being sent to Professor Reichenbach, who described and possibly named the plant. At the commencement of last year, I believe, Mr. Bull bought a portion of the original plant back from Mr. Lee, and sold one plant to M. Masereel, the well-known Ghent Orchidist, who sold it at a considerable profit to M. Jules Hye Leysen, who divided the plant, keeping one portion himself, the other portion coming in exchange for another rare *Cypripedium* to me. One other portion of the original plant went to Mr. Tautz's well-known collection, the price paid indicating the estimation in which Mr. Bull and Mr. Tautz held it."

Respecting the colour it is remarked: "According to the descriptions given by those who have seen the flowers, it must be one of the handsomest yet obtained. The general character is said to be a fine mauve purple, the dorsal sepal white with green and purple stripes, and the petals broad and spotted with purple on a white ground."

It would be interesting to know what has become of this remarkable plant. A single flower was sent to Kew by Mr. W. Bull, in November, 1891, and has been carefully preserved, this being the only flower we remember to have seen, and it is certainly very striking, in shape and colour.

MAXILLARIA PICTA.—This interesting old garden plant is blooming profusely at Kew, and it is interesting to note that the flowers possess a strong aromatic fragrance. The species was introduced to cultivation upwards of eighty years ago, having been sent from the Organ Mountains, Brazil, by Mr. William Harrison, in 1831. Soon afterwards it flowered in the collection of Mrs. Arnold Harrison, of Liverpool, when it was described and figured (*Bot. Mag.*, t. 3154). The sepals and petals are yellow in front, but paler behind, with some purple blotches, while the side lobes of the lip are marked with dark purple, and the column of the latter colour.



O B I T U A R Y .



C. F. BALL.—It is with the deepest regret that we learn that Mr. C. F. Ball, Assistant Keeper of the Royal Botanic Garden, Glasnevin, and Editor of *Irish Gardening*, has been killed in the Dardanelles, having been struck by a fragment of a shell on September 13th, when enjoying a short respite after being in the thick of the fighting, and so seriously wounded that he died the same day. Born at Loughborough on October 13th, 1879, he commenced his gardening career with Messrs. Barron & Sons, at Elvaston, Derby, and after spending a year with Messrs. Barr & Sons, at Long Ditton, he entered Kew in July, 1900, and was promoted to be subforeman of the herbaceous and alpine departments in 1902. In December, 1906, he went to Glasnevin, and was appointed Assistant Keeper in June, 1907, a post he has filled with distinction. Soon after the outbreak of war he obeyed the call of duty and joined the Royal Dublin Fusiliers, and now the horticultural world has to deplore the loss of one of its most promising members. Ball was a keen observer of plant life, and on several occasions went to Switzerland to collect plants and seeds, besides collecting on both the French and Italian sides of the Maritime Alps. Four years ago he made a trip to Bulgaria in company with Mr. H. Cowley, and among the plants brought home were *Orchis laxiflora* and *sambucina*, which have since flowered at Glasnevin. He was also much interested in hybridisation and the experimental side of horticulture. A portrait of Mr. Ball is given in *The Garden* for October 16th, and a full biographical notice by Sir Frederick W. Moore appears in the current issue of *Irish Gardening*, from an advance copy of which we have taken some of the above details. A pathetic circumstance is that he was married only a few months ago, and to his widow the deepest sympathy is extended by a wide circle of friends.

DR. J. MEDLEY WOOD.—This veteran South African botanist passed away on August 26th last, in his eighty-seventh year. A native of Mansfield, Notts, and thus a fellow countryman of the late Dr. Bolus, Dr. Wood emigrated to Natal about sixty-three years ago, and while engaged in farming and other pursuits was greatly attracted by the rich local flora. In February, 1882, he was appointed Curator of the Natal Botanic Garden, where he established a large Herbarium, in which the Orchids of the Colony were finely represented, and from which valuable contributions were made to Kew from time to time. His official work was largely connected with the economic plants of the Colony, and his six illustrated volumes of *Natal Plants* will form an enduring memorial of his work. The Orchid genera *Satyrium*, *Eulophia*, *Disperis*, and *Brownleea* all contain a species *Woodii*, named in his honour.

 THE BRASSOCATLÆLIAS.

THE Brassocatlælias now form a considerable group, and it is interesting to recall the fact that the earliest of them appeared just eighteen years ago. It was raised in the collection of the late Sir Trevor Lawrence, Bart., Burford, Dorking (gr. Mr. W. H. White), and received an Award of Merit from the R.H.S. in December, 1897. It was then remarked (*Gard. Chron.*, 1897, ii. p. 438) that among the exhibits that were remarkable was "Brasso-Catt-Lælia $\times$ Lindleyana-elegans (Brasso-Cattleya $\times$ Lindleyana $\times$ Lælio-Cattleya $\times$ elegans, a hybrid that forms an idea of the complication in form of flower and leaf, &c., likely soon to arise. It bore an inflorescence of pretty flowers, with blush-white sepals and petals and dark purple labellum." In our own report, and in a subsequent note, the generic name was simplified to Brassocatlælia (*O.R.*, 1898, pp. 30, 46), in accordance with the rule for compounding such generic names, and somewhat later it became Brassocatlælia Lawrencei (*O.R.*, x. p. 86), under the rule that specific names should consist of a single word. Later innovations have changed the generic name, successively, into Brasso-Lælio-Cattleya, Lælio-Brasso-Cattleya, and Brasso-Cattleya-Lælia, which, however, have neither priority, rule, nor brevity to recommend them, and may be passed over.

When the *Orchid Stud-Book* was published the number of Brasso-catlælias had grown to ten, and the number has now greatly increased, so that an enumeration of the additions will be interesting. It will be noticed that the hybrids Brassavola $\times$ Læliocattleya, Cattleya $\times$ Brassolælia, and Lælia $\times$ Brassocattleya come under the same name.

BCL. ALBATROSS (Bl. Veitchii $\times$ C. Mossiæ), *O.R.*, 1914, p. 216.—Flory & Black. June, 1914.

BCL. ARIEL (Bc. Leemanix $\times$ L. purpurata), *O.R.*, 1914, p. 58.—Flory & Black. Jan. 1914.

BCL. ASTARTE (B. Digbyana $\times$ Lc. Martinetii), *O.R.*, 1912, p. 340.—Sander & Sons. Oct. 1912.

BCL. BEARDWOODIENSIS (B. Digbyana $\times$ Lc. Violetta), *O.R.*, 1912, p. 220.—Col. J. Rutherford. May, 1912.

BCL. BEAUCIS (Bc. Leemanix $\times$ Lc. Fournieri), *O.R.*, 1913, p. 87.—Ch. Maron. Oct. 1911.

BCL. COOKSONII (Bl. Gratrixix $\times$ C. Dowiana), *O.R.*, 1909, p. 82).—N. C. Cookson. Feb. 1909.

BCL. DIETRICHIANA (Bc. Leemanix $\times$ C. Fabia), *O.R.*, 1910, p. 209.—Ch. Maron. March, 1910.

Lc. Dietrichiana, *Trib. Hort.*, 1910, p. 194, t. 201.

BCL. ELATIOR (Bc. Veitchii × Lc. Hippolyta), *O.R.*, 1901, p. 148.—James Veitch & Sons. April, 1909.

Bcl. Pink Beauty, *O.R.*, 1910, p. 178.—James Veitch & Sons. May, 1910.

BCL. FRAGNEANA (Bl. Gratrixiæ × C. Trianæ), *O.R.*, 1911, pp. 45, 94.—J. Ginot. Jan. 1911.

BCL. GLADIUS (C. bicolor × Bl. Veitchii), *O.R.*, 1914, p. 363 (Gladys).—E. Whiteway. Nov. 1914.

BCL. HYLAS (Bl. Veitchii × C. Aclandiæ), *O.R.*, 1914, p. 186.—Flory & Black. May, 1914.

BCL. JOAN (Bl. Gratrixiæ × C. Octave-Doin), *O.R.*, 1914, p. 86.—Charlesworth & Co. Feb. 1914.

BCL. KING-EMPEROR (Bc. Veitchii × Lc. Dominiana), *O.R.*, 1911, p. 179.—F. Wellesley. May, 1911.

Brasso-Lælio-Cattleya Prince of Wales, *G.C.*, 1914, i. p. 355.—Armstrong & Brown. May, 1914.

BCL. LEEANA (Bc. heatonensis × Lc. Hyeana), *O.R.*, 1912, p. 126.—J. Cypher & Sons. Feb. 1912.

BCL. MORNA (Bc. Maroniæ × Lc. bletchleyensis), *O.R.*, 1912, p. 317.—James Veitch & Sons. Sept. 1912.

BCL. NOLA (B. nodosa × Lc. callistoglossa), *O.R.*, 1914, p. 309.—J. & A. McBean. Sept. 1914.

BCL. SURPRISE (C. bicolor × Bl. Veitchii), *O.R.*, 1910, p. 18.—G. P. Walker. Nov. 1909.

BCL. THOMPSONII (Bl. Veitchii × C. Gaskelliana), *O.R.*, 1911, p. 307.—Charlesworth & Co. Sept. 1911.

BCL. WINIFRED (Bl. Gratrixiæ × Lc. Myra), *O.R.*, 1910, p. 86.—Charlesworth & Co. Feb. 1910.

BCL. WOTAN (Bc. Leemaniæ × Lc. callistoglossa), *O.R.*, 1912, p. 62.—J. Leeman. Dec. 1912.

ORCHID SEEDLINGS.—When growing wild it is evident that the contents of the mature capsules after dehiscence are more or less scattered by the wind, perhaps wafted to great distances, until they settle on the branches of trees, on shelving rocks, or other suitable substrata where the seeds can germinate and the seedlings firmly affix themselves. Following, or at least believing that we were following Nature, so far as the altered circumstances of artificial cultivation allowed, every method or available means that could be thought of was brought into request to secure the germination of the seed. It was sown upon blocks of wood, pieces of tree-fern stems, strips of cork, upon the moss that surfaced the pots of the growing plants, in fact, in any situation which seemed to promise favourable results.—Veitch, *Man. Orch. Pl.*

 ORCHID NOTES AND NEWS.

TWO meetings of the Royal Horticultural Society will be held at the Royal Horticultural Hall, Vincent Square, Westminster, during November, on the 9th and 23rd, when the Orchid Committee will meet at the usual hour, 12 o'clock noon.

Meetings of the Manchester & North of England Orchid Society will be held at the Coal Exchange, Manchester, on November 4th and 18th. The Committee meets at noon, and the exhibits are open to the inspection of members and the public from 1 to 4 p.m. The following meeting is fixed for December 2nd.

Mr. Herbert Cowley has been appointed Editor of *The Garden* in place of the late Mr. F. W. Harvey. Mr. Cowley has been Assistant Editor for five years, and at the outbreak of war joined the County of London Regiment, and has seen some months of active service. Some time ago he returned wounded, but has happily recovered, though a stiff leg will prevent his return to the front. Mr. Cowley was previously associated with the Royal Gardens at Windsor and Kew, and four years ago made a collecting trip to Bulgaria and the Rhodope Alps, in company with Mr. C. F. Ball, whose loss we have now to deplore. We congratulate Mr. Cowley, and wish him success in his new career.

AMERICAN NOTES.—The three following notes are culled from a copy of *Horticulture* that has just reached us, and constitute the only information about Orchids in the States:—

WEST ORANGE, N.J.—The Manda Floral Co. (Joseph Manda) had a public exhibition of Orchids last week which attracted a throng of visitors. *Cattleya labiata* made a fine display, and, under Mr. Manda's skilful manipulation, will so continue until Christmas. *Cattleyas* in general seemed to find an ideal home here, as do also the *Vanda cœrulea* and *Cypripedium insigne Sanderæ*. Of the last-named, Mr. Manda has 1000 plants. Among the novelties here are a yellow *Miltonia candida*, *Brassocattleya Leemaniae* and an attractive sport from *Swainsona* with flowers of *Cattleya* pink colour.

SAN FRANCISCO.—A special showing of Orchids in handsome basket arrangements attracted much attention in the window of Joseph's shop on Grant Avenue the past week.

CHICAGO.—Charles McKeller has this week big yellow pumpkins, lined up on one counter, rather drolly contrasting with the Orchid display case just opposite. Some florists are using them for flower baskets to make unusual window attractions.

HELP FOR THE RED CROSS FUND.—We note with pleasure that Mr. F. Ducane Godman, South Lodge, Horsham, is offering for sale a selection of Orchids from his collection, to be sold for the benefit of the Red Cross Fund. The list, which we saw at the last meeting of the R.H.S., contains a large number of showy things. Particulars may be obtained of Mr. Savegar, gardener to Mr. Godman at the address given.

We learn with deep regret that Mr. James Hudson, gardener to Leopold de Rothschild, Esq., Gunnersbury House, Acton, has lost his wife, on October 21st, after a month's illness.

CYMBIDIUM MASTERSII ALBUM.—A fine plant of this chaste and beautiful variety is now in bloom at Kew, bearing five racemes of white flowers, with a little yellow on the disc. It contrasts well with the typical form, which is more or less blotched with purple on the lip.

AUTUMN-BLOOMING CATTLELAS are now making a fine show in our collections, and it is interesting to note how largely they are derivatives of *C. labiata*, *Bowringiana* and *Dowiana*, or combinations between them and others that bloom at or near the same period. The re-introduction of the fine old *C. labiata* in quantity over twenty years ago made a revolution in our collections, and supplied materials to the hybridists to work upon, and its derivatives *C. Fabia* and *C. Mantinii* are among the most brilliant of those now in bloom.

CYPRIPEDIUMS.—The winter-blooming *Cypripediums* are now beginning to make their annual display, and will continue to do so till long after Christmas. They range themselves largely round the useful *C. insigne*, probably the easiest and most universally grown Orchid in cultivation. We recently received a complaint that *Cypripediums* were going out of fashion, but we see little evidence of it so far as the winter-blooming kinds are concerned.



ANSWERS TO CORRESPONDENTS.



BEGINNER.—The seeds of *Cypripediums* should be sown on the surface of the compost of growing plants that will not be disturbed for at least a year. Part of the seed may be sown now and the rest in the spring. The only thing then is to keep the compost moist and await the appearance of the young seedlings.

G.H.—*Rodriguezia secunda*, H.B.K.

Photographs received, with thanks.—F.S.

M.L.B.—The communication has been duly forwarded.

E.C.—The name *Bulbophyllum cupreum* has been applied to more than one copper-coloured species. Lindley's original plant was said to be from the Philippines, but this probably arose through some mistake.

A.J.S.—We have made several enquiries, but we regret to say without result. Will communicate if we hear anything.

H.G.N.—The diversity in the offspring is the result of mixed parentage. There is no means of controlling the result. You can only experiment and discard the undesirables.

Received, with thanks —R.V.S., Sir J.C., S.L., F.C.



The Orchid Review

VOL. XXIII.

DECEMBER, 1915.

No. 276.



OUR NOTE BOOK



NOVELTIES worthy of Certificate among imported Orchids seem to have almost reached the vanishing point at our horticultural meetings, and it was a welcome surprise to see a fine new *Vanda* gaining an Award of Merit at the R.H.S. meeting held on November 9th. A few years ago, before the advent of so many hybrids of sterling merit, it would have gained a First-class Certificate. *Vanda luzonica* is a Philippine species, and was discovered and sent out by M. Loher a few years ago, though no description appears to have been published at the time. Its history and a figure, however, were given at page 137 of our issue for May last, the latter from a plant which flowered in the collection of Mr. Hugh Dixon, of Sydney, over a year ago. Then it was exhibited at the Panama Exhibition last June, and now it has bloomed with Messrs. Sander & Sons, and at Kew, the latter being a plant obtained from Messrs. Karthaus in 1911. In habit the plant resembles the well-known *V. tricolor*, but the flowers are white, with a violet-purple lip, and some markings of similar colour at the apex of the sepals, these, however, being very small in Messrs. Sander's plant. This plant, by the way was not fully developed, the number of flowers being six, only about half as many as in the figure cited, which was reproduced from a photograph.

The meeting held on November 9th brought together a choice display of autumn-blooming Orchids, and it is interesting to recall that but for the war we should probably have had a special Show on this date, on the lines of the one held in November, 1912. The proposal was under consideration when the outbreak of war postponed the matter indefinitely. Since then everything has been out of course, and the ordinary meetings have never quite regained their normal character, though the steady accession of meritorious hybrids has scarcely experienced a check, which may be taken as a happy augury for the future, when things return to their normal condition. But that time is not yet.

At the following meeting *Cypripediums* were more in evidence, and carried off three of the six certificates awarded, these being from a select group of splendidly-grown plants, staged by an amateur, which also gained a Silver Flora Medal. They were placed, unfortunately, behind the Grille, and consequently did not appear to the best advantage, especially as the light was rather bad. One of the trade groups also, with a single exception, consisted of choice *Cypripediums*. These details are mentioned, because we have received more than one complaint that *Cypripediums* are not appreciated by the R.H.S. Orchid Committee—in fact, it has been seriously suggested that the R.H.S. should appoint a small sub-Committee of the *cognoscenti* to adjudicate upon the *Cypripediums* exhibited.

There may be something in the suggestion that *Cypripediums* are rather out of fashion just now, but we believe that their value as winter-blooming plants is fully recognised, and at all events they are very generally cultivated. There are two or three reasons for an apparent want of popularity. Few of the species are brilliant in colour, and the extreme facility with which hybrids can be raised has led to the production of a host of seedlings, many of which can hardly be called improvements. And after a rigid selection has been made, they are not always shown under the best conditions, for they do not, as a rule, blend well with other Orchids, yet a number of plants staged separately, each bearing a single flower, and all facing the same way, as we sometimes see them, have a very formal appearance. This objection is largely got over when the plants are large enough to bear several flowers, and then only can their decorative value be fully appreciated.

What is now wanted is an increase in the range of colour, especially in the direction of rose and purple, and this is gradually being effected, partly through the use of the very distinct *C. Charlesworthii* and partly by continued crossing with the brightly-coloured species of the tessellated-leaved group and their derivatives. The range of whites and yellows is also being extended, through *C. insigne* Sanderæ and *C. niveum*, which when united gave the beautiful *C. Venus* var. *Boltonii*, a sterling acquisition that should be followed up. There is plenty of room for improvement, and the opportunities are not being lost.

A reply to a correspondent at page 324 on a question of nomenclature has brought us further communications on the subject. It is pointed out that, with a few regrettable exceptions, there is a general agreement as to the necessity of adopting the rules that have been adopted by international agreement, which in their original form were drawn up to remedy a condition

of things that was becoming intolerable. They have been the subject of careful consideration, and the view is expressed that in their modified form they are adequate to meet the case, and should be loyally followed, for their neglect will only pile up another mass of confusion that will be increasingly difficult to remedy as time goes on.

Some of the discrepancies, it is remarked, are difficult to understand, and one of them is the want of uniformity in writing the names of generic hybrids, for example *Læliocattleya* and *Lælio-Cattleya*. Some writers persistently use the latter form for all such names, yet it is not in accordance with the rules. *Brassocatlælia* and *Brasso-Lælio-Cattleya* form a much worse example, as may be seen from a remark on page 349, and a similar remark applies to *Sophrocatlælia* and *Sophro-Lælio-Cattleya*, for these two cases are expressly provided for in the rules. The *R.H.S. Journal*, we note with satisfaction, has of late dropped the use of the hyphen, and we hope soon to see the rule adopted in its entirety. There are cases where the use of the hyphen seems necessary, but it does not apply to the names of generic hybrids compounded from the names, or parts of the names, of the two parent genera. The correction should be easy to make, because Messrs. Charlesworth have always adopted the correct form of the names in their Catalogues, and they are so given by Curtis in *Orchids for Everyone*. And at the last R.H.S. meeting a label was attached to a plant of *Sophrocatlælia* Niobe stating that it had already received an Award of Merit, which is quite correct, though the name does not appear in that form in the List of R.H.S. Awards.

It is rather curious that the specific name of *Brassocatlælia Lawrencei*, for the natural hybrid between *Brassocattleya Lindleyana* and *Læliocattleya elegans*, should have been taken exception to. The idea seems to have arisen out of an old Paris rule of indicating a hybrid under the joint names of the parent species, but this is not possible when the parents are themselves hybrids, as in the present case; at all events, a string of four specific names would be required, and this system of nomenclature has long ago broken down.

It may be interesting to recall that some time ago we summarised the nomenclature of hybrids from the historical standpoint (*O.R.*, xxii. pp. 101-104), and afterwards drew up a revised set of rules for the London Botanical Congress (*l.c.*, pp. 133-135). The Congress had to be postponed until after the war, but in the meantime the rules themselves, which combine the Vienna and Brussels Rules, form a sound working basis, and in the interests of an orderly system of nomenclature we appeal for their adoption.

 OBITUARY.

F. W. ASHTON.—We regret to hear of the death of an old member of the Orchid trade, Mr. F. W. Ashton, of 116, Hewitt Road, Harringay. Mr. Ashton was for some time in the Orchid houses at Kew, leaving in May, 1885, and after spending a time with Messrs. Hugh Low & Co., becoming Manager to Messrs. W. L. Lewis & Co., Southgate, being admitted as partner in November, 1904, when the firm became Messrs. Stanley & Ashton. In March, 1905, Mr. Ashton severed his connection, and was appointed representative to Messrs. Hugh Low & Co., a post which he retained for five years, after which he commenced business for himself as a horticultural commission agent. Mr. Ashton has been in failing health for some time, and the end came a few weeks ago.

 CIRRHOPETALUM GRACILLIMUM.

A GOOD plant of this dainty little *Cirrhopetalum* was exhibited by Messrs. Armstrong & Brown, Tunbridge Wells, at the R.H.S. meeting held on November 9th last, and it has also flowered freely at Kew, recalling the fact that it received an Award of Merit in July, 1907, when exhibited by Sir Trevor Lawrence, Bart. The species was described about twenty years ago (Rolfe in *Kew Bull.*, 1895, p. 34), though it has been known since April, 1888, when it flowered in the collection of T. R. Jarvis, Esq., Laurel Grove, Chelmsford. The habitat was then doubtful, and Burma was suggested, though it was probably the Malay Peninsula, where it is now known to occur in several localities. It was afterwards described as *C. psittacoides* (Ridl. in *Journ. Linn. Soc.*, xxxii. p. 280), ultimately becoming *Bulbophyllum psittacoides* (Ridl. *Mater. Fl. Mal. Penins.*, i. p. 80). It now proves to have a wider diffusion, having also been collected in Borneo, by Dr. G. B. Haviland, and in the Solomon Islands, by Mr. C. M. Woodford, while, according to Mr. J. J. Smith, it also occurs in Amboina (*Orch. Ambon*, p. 84). It is a very graceful little plant, producing slender scapes about nine inches high, with an umbel of numerous reddish crimson flowers. The lateral sepals are almost thread-like, and about 1½ inches long, while the petals and dorsal sepal bear numerous long ciliate hairs.

Mr. Ridley published a very interesting note respecting the fertilisation of the flowers. He remarked: "This is a very distinct little species, and, though the flowers are small, is really pretty. The lateral sepals are so bent and connate at the base as to form a tube with a circular mouth, over which hangs the violet lip. Their apices are separate and hang down, and

are very slender and setaceous. The petals are rather long in proportion and strongly ciliate. The flowers form a perfect circle, and look like a series of very small parrots' heads, the lip representing the beak. They are (as indeed all the *Cirrhopetala* are) fertilised by a minute Dipteron, which usually settles upon the long pendent sepals and climbs up them till it reaches the lip, upon which it sits, and when it has got beyond the balancing point of the lip is pitched off upon the column, when it receives the pollinia. I have seen one fly ride on the lips of all the flowers in an umbel in turn, but as a rule only one or two flowers at most are fertilised." It is certainly a very attractive little plant.

R.A.R.



LANIUM BERKELEYI.—Orchids occasionally appear in cultivation quite unexpectedly, and this was the case with the interesting little Brazilian species that is the subject of this note. It was described over twenty years ago (Rolfe, in *Kew Bull.*, 1894, p. 292) from a plant that was found on the roots of a clump of *Cattleya*, probably *C. Leopoldii* (though it was called *C. guttata*), by Major-Gen. E. S. Berkeley, Bitterne Park, Southampton. It flowered in January, 1891. Afterwards Messrs. Sander obtained it among their Brazilian importations. And now history is repeating itself, for Mr. E. W. Thompson sends it for name from the collection of Philip Smith, Esq., Haddon House, Ashton-on-Mersey, with the information that it was found on the roots of an imported *Lælia purpurata*. This would indicate the habitat as Santa Catherina, where *C. Leopoldii* and *L. purpurata* grow together. Another plant flowered at the Royal Botanic Garden, Edinburgh, that was found on the roots of *Cattleya Harrisoniana*. It is a graceful little plant, some six or eight inches high, the small pseudobulbs bearing a pair of short, oblong leaves, and erect spikes of small light green flowers, with a few minute reddish dots.—R.A.R.



MILTONIA VEXILLARIA VAR. LEOPOLDII.—Flowers of a very interesting seedling of *Miltonia vexillaria* are sent by Messrs. Charlesworth & Co., Hayward's Heath, in which *M. vexillaria* var. *Leopoldii* has been used twice in the crossing. Messrs. Charlesworth write: "In the first place *M. v. Leopoldii* was crossed with an ordinary *vexillaria*, producing what Vuylsteke called *M. v. dulcis*, none of which showed any influence of *Leopoldii*, for we believe the remark applies to Vuylsteke's batch as well as our own. This was again crossed with *Leopoldii*, producing, as you see a very similar thing to *Leopoldii*. This is the third seedling of the batch, and all are practically the same." The remark is quite correct, and the resemblance seems to extend also to the autumn-flowering character. The large, triangular, intense purple blotch at the base of the lip sets the flowers off to great advantage.



ORCHIDS AT THE PRIORY, USK.



IN January, 1902, page 4, there appeared in the *Orchid Review* an account of the Orchids cultivated by Mr. R. W. Rickards, from the pen of Mr. H. A. Burberry, and, after a lapse of over thirteen years, a few more notes on the same collection may be interesting, and they will show that the owner still maintains his love for the fascinating plants to which this journal is devoted. It was on November 18th last that my visit was made, and it was not long before I discovered an enthusiast, and one who could appreciate a good Orchid. I must state at the beginning that Mr. Rickards is a keen amateur, and one who attends to the potting, watering, &c., himself. The collection is a small but choice one, and consists of *Cypripediums*, *Odontoglossums*, and *Cattleyas*, the former being in the majority. Every plant was in the rudest health, and there were several growths in each pot, while numerous scapes were twin-flowered. The foliage was hard, and a beautiful tint of green, and the flowers were in consequence of that fine firm texture that indicates the highest possible development.

I felt, upon entering the *Cypripedium* house, and viewing the plants as a whole, that the cultural conditions were right. A close inspection was then begun in company with Mr. Rickards, and the following are a few of the most conspicuous of the 200 blooms that were fully expanded at the time. Many were characterised by the beautifully spotted dorsal sepals, some showing a tendency towards red, and others a deep purplish-violet. The Shrubbery variety of *C. elatior* had three scapes and four flowers, the reddish spots being well developed. Other noteworthy plants included *C. The Baron*, *C. Moonbeam*, an exceptionally good plant of this scarce *Cypripedium*, with ten strong growths and three stout buds. Another interesting plant was *C. Connie* (*Fairrieanum* × *glaucophyllum*), and *C. Iona* (*Fairrieanum* × *bellatulum*), is also a desirable acquisition to this pretty group. A very fine form of *C. Priam* was noted with five flowers, also the Westonbirt variety of *C. Lord Wolmer*, the white *C. Boltonii*, and a grand form of *C. Thalia* still one of the most brilliantly-coloured of autumn-blooming *Cypripedes*.

C. Leeanum Corona had twin-flowered scapes, and a beautiful type of *C. Actæus* was characterised by the large area of pure white on the dorsal sepal. *C. St. Alban* is distinct so far as colour is concerned, and provided a pleasing contrast to *C. insigne* Harefield Hall var. and *C. i. Sanderæ*, of which there were some excellent examples. *C. Goliath* Lee's variety is a fine bold flower, and *C. Queen Alexandra*, a charming variety with very bright spots on the dorsal sepal, had three strong scapes and a number

of growths. *C. Curlew* is another good thing, and *C. Pyramus* var. *Garnet* is a gem of the first water. The flower is perfect, and the colour magnificent. *C. Nydia*, with three flowers, was also good. *C. Satyr* (*Beryl* × *Euryades*) and *C. Pyramus* (*Euryades splendens* × *Mrs. Wm. Mostyn*) were excellent, and among those as yet unnamed were *C. G. F. Moore* × *Leeanum Clinkaberryanum*, and *Earl of Tankerville* × *alportense*. More will be heard of these sterling novelties later on.

The object at The Priory is to secure flowers of the best quality, and to this end the plants are not divided at every opportunity. In this respect the collection is unique, as most growers, directly they secure a first-class variety, endeavour to increase the stock without delay, with the result that it is some years before the plant can do itself justice again after producing its first flowers. A high standard of excellence is maintained, as Mr. Rickards discards a few each year, and adds "new blood" from time to time.

With plants in such a fine condition, I was prompted to inquire about the treatment given, and I was informed that, in regard to repotting, the soil employed consisted very largely of good fibrous loam, which formed the bulk, with a little fibre and leaves added. In such a compost the plants will go two, and, as a general rule, three, years without further disturbance, but the watering must be done carefully. Wood lath roller blinds are used, and the interior of the house is much the same as the usual Orchid structure, with porous bricks placed in front of the hot-water pipes. The house and plants presented a smart and clean appearance, and it was a treat to me to see such a valuable lot of plants, a great number being in flower. Very few plants had single spikes, each one being more or less a specimen, which would make several good pieces if it was thought desirable to divide them. Plants thus grown are always more effective than when divided.

The *Cattleyas* and allied genera occupied a smaller house, but here again the discrimination of the connoisseur was evident. A beautiful form of *Cattleya Rhoda* was seen, fine varieties of *C. Dowiana aurea*, *C. Fabia*, and a well developed *C. Luegæ*. Among the *Brassocattleyas* was *B.-c. Cliftonii*, with broad massive sepals and a prettily fringed lip, quite in proportion to the other parts of the flower. *Lælia anceps*, especially such varieties as *Schroederiana* and *Sanderiana*, will give a display about Christmas, and *Læliocattleya bella alba* was in bloom. Many plants, of course, were not in flower, such as *Brassocattleya Digbyano-gigas*, and *Bc. Leemaniæ*, the latter being a favourite, and represented by ten healthy examples. *Cattleya Maggie-Raphael alba*, and other choice *Cattleyas*, are also grown, and the plants generally were in excellent condition. A few *Oncidiums* are grown with the *Cattleyas*.

The *Odontoglossums* and *Odontiodas* are cultivated in a house with a north aspect, and although only a few were in flower, the plants were a nice healthy lot. Firm pseudobulbs and strong growths were the general



Fig. 44. ODONTOGLOSSUM HOUSE AT THE PRIORY, USK.

rule, and these will be worth a visit in the spring, at which period the plants flower in the greatest profusion.

The atmosphere is not at all stuffy, fresh air being admitted on all favourable occasions. In the three houses several plants were suspended

from the roof, such as Cattleyas and Oncidiums, the whole stock comprising a choice collection, the appearance of which does Mr. Rickards the greatest credit.

It was interesting to see a complete bound set of the *Orchid Review* in Mr. Rickards' room, which is in close proximity to the Orchid houses.

T.W.B.

[After the above was in the printers' hands we had the pleasure of seeing a selection of the plants, for Mr. Rickards staged a small group at the R.H.S. meeting held on November 23rd, when a Silver Flora Medal was awarded, a testimony both to the quality of the plants and the excellent culture. Three of the plants also received Awards of Merit from the Orchid Committee. A report appears on another page. The *Odontoglossums* are grown with equal success, as may be seen by the illustration of the *Odontoglossum* house on the preceding page. Mr. Rickards informs us that the plants were not posed for the camera, but were photographed just as they were grown. Mr. Rickards must be congratulated on his success, which should be an encouragement to other amateurs.—Ed.]



VANDA SANDERIANA.



(See *Frontispiece*.)

THE Frontispiece to the present volume represents a magnificent specimen of *Vanda Sanderiana*, which was exhibited by Messrs. Sander & Sons, St. Albans, at the R.H.S. meeting held on September 28th last, and to which the Lindley Medal was awarded in recognition of its excellent culture. It has been grown from a dwarf piece imported several years ago, and is now a sturdy specimen with four growths. When exhibited, the plant bore six strong spikes and an aggregate of 42 flowers, while a seventh spike was pushing up. The species is by no means easy to grow, and our readers may remember the graphic account given at page 15 by the late Mr. J. C. Harvey of his struggles with it in South Mexico. Probably the treatment was not correct in some essential particular, though an attempt was made to reproduce the conditions under which it is said to occur in Mindanao, and the remarkable thing is that *Aërides Lawrenceæ*, said to grow in company with the *Vanda*, behaved quite normally. *Phalænopsis Sanderiana* is also said to grow in the same company. The locality is described as South-east Mindanao, the principal station being recorded as Davao, where it grows on trees that overhang the beach, and where the long trailing roots are often within reach of the salt spray. The species was discovered and introduced in 1882 by M. Roebelen, a collector for Messrs. Sander, and flowered for the first time in this country in the summer of 1883, in the collection of Mr. W. Lee, of Leatherhead.



CALENDAR OF OPERATIONS FOR DECEMBER.



By W. H. WHITE, for many years Orchid Grower to the
late Sir Trevor Lawrence, Bart., K.C.V.O.

CALANTHES.—Among plants now in bloom are the early-flowering varieties of the *Calanthe vestita* section. When about two-thirds of the blooms have opened, the plants may be removed from their warm growing quarters to the *Cattleya* house, as the flowers will fade less quickly in a lower temperature. The plants will now need but very little water, as both foliage and roots are fast giving out. As these *Calanthes* require a period of thorough rest, they should, immediately on the spikes being cut, be placed on a dry shelf close to the roof of the warmest house; or if this be inconvenient, they may be placed in a similar position in the *Cattleya* house, where, in either case, the light will help to mature the growths. Before removing them to their resting quarters, closely examine every pseudobulb for white and brown scale, which commonly infest them. If a rather strong solution of soft soapy warm water be used, with a stiff brush and sponge, these insects may easily be eradicated. Water must be entirely withheld during their season of rest. The later-flowering varieties of the *Calanthe Regnieri* section are pushing up their spikes, and must still be watered with care. The inflorescences of these late varieties come in very useful during the early spring months for furnishing cut bloom for decorative purposes, and the plants themselves are well adapted for ground work in large halls, or the conservatory, producing a very pretty effect when arranged with Ferns, *Asparagus*, small Palms, &c. The deciduous *Eulophias* require similar treatment.

DENDROBIUMS.—Many lovely forms of *Dendrobium Phalænopsis* are also in bloom and are very effective, the colours of the flowers ranging from pure white to rich crimson purple. Their long arching spikes last for a very long time, either on the plants or when cut. While in bloom the plants may be placed with the *Calanthes*, the drier atmosphere afforded favouring the lasting of the flowers. After the spikes are cut, place the plants in the lightest part of a house where the winter temperature does not fall below 60°. Plants that were well exposed to the sun's rays when completing their growth, and were well matured, will need very little water during their long season of rest, but when excessive shrivelling of the pseudobulbs is feared a little water should be afforded.

It is now advisable to look over the deciduous *Dendrobiums*, especially *D. Wardianum*, *D. crassinode*, *nobile*, *Ainsworthii*, and other species and hybrids too numerous to mention, for many are showing their flower buds, and they may be brought from their resting positions into a house where the night temperature does not fall below 55°. The *Cattleya* house

will be warm enough for the present, and until the buds are fully developed, when removal to the lightest position available in the East Indian house will be a suitable change, and will assist further to open the blooms. After removal from the resting-house, water must be applied at comparatively long intervals, as any undue excitement while the flower buds are developing frequently causes the new growths, now visible at the base of the pseudobulbs, to break away, and prevents the flower buds from coming to perfection. These remarks apply particularly to *D. Falconeri*, *D. Wardianum*, and their hybrids, plants of which have for some time been resting in a temperature of about 50°, or a little less at night. These for several weeks past have shown flower buds at the extreme end of the pseudobulbs, and if the plants had been put into extra warmth earlier, these buds would not have developed properly or would have gone off prematurely.

Where many plants of *D. nobile* are grown, flowers may be obtained during several months by placing the earliest in a cool dry house to rest, and, as soon as the growths are fully matured, bring them into gentle warmth as flowers are required. There are many species of *Dendrobium* which bloom later in the spring, as *D. Parishii*, *Bensoniæ*, *albosanguineum*, *superbum*, and its several beautiful varieties. These, and many others, having completed their current season's growths, should be placed high up in the *Cattleya* house during their season of rest, and all of them should be kept as dry at the root as possible, until their flower buds show, when they may be removed to the East Indian house.

ZYGOPETALUMS.—*Z. Mackayi* generally does best in a warm stove-like temperature, and at this season is sending up strong spikes of bloom. When flowering is past, or the spikes are cut, the plants may be repotted if necessary, and as it is a free, deep-rooting species, plenty of pot room and a good depth of compost is required. The pots should, therefore, be filled to about a quarter of their depth with drainage materials, and a mixture of good turfy loam and *osmunda* fibre, with plenty of crocks mixed in, will form a suitable compost. Pot the plants with the compost up to within an inch of the top of the pot, then take a portion of the compost and mix with it a moderate quantity of chopped sphagnum moss, and this should be used as a surface dressing. The rare *Z. Burkei*, now about to flower, requires the same treatment. Still more rare is the beautiful *Z. Ballii*, also flowering, and this requires the cooler temperature of the Intermediate house. Other kinds that thrive best in a cool shady corner of the house are *Z. crinitum*, *Perrenoudi*, *intermedium*, *Murrayanum*, *brachypetalum*, *leucochilum*, *Armstrongii*, *Brewii*, *Gottianum*, and the rare *Z. Lindenii*. They should be repotted soon after growth commences in the same compost as that advised for *Z. Mackayii*. *Z. rostratum* is a fine species that requires a rather warm temperature. Its

chief feature is the very large, nearly white lip. *Z. Roeblingianum*, its nearest ally, is a supposed natural hybrid.

ZYGOPETALUM MAXILLARE, when well grown, is certainly a handsome species, and several fine hybrids have already been obtained from it. The lip of the best variety is of a rich violet blue, which shows well against the green and brown of the sepals and petals. *Z. maxillare*, in its native country, grows on the stems of a Tree Fern, its last-made growth being immediately under the crown of the Fern fronds. This is generally the case, as seen by imported specimens, but not always among the smaller pieces. Where it does occur it is very remarkable that the two plants should grow up at the same rate together, and it is instructive to note the amount of subdued light the Orchid must obtain from the spreading fronds of the Fern. As the plant is nearly always imported on the Fern, it should therefore be allowed to remain attached to it until it has made its first growth. Probably by that time it will have overgrown the Fern stem, when it will require additional support, and the best thing to do is to fasten the whole either to the trunk of a living Tree Fern or to a long piece of dead. Suspend the plant in a shady position in the Intermediate house, and never allow it to become dry at the roots, but spray the leaves and stems lightly overhead every morning, even during winter, and on several occasions each day in summer. Mealy bug is nearly always imported on the plant, and unless kept well under by brush and sponge will quickly bring the plant into a debilitated condition. The rare *Z. Sanderianum* has longer flowers than *Z. maxillare*, and a very fine pure white lip.

ZYGOPETALUM HYBRIDS.—The cultural conditions suitable for *Zygopetalum* also apply to *Zygocolax*, as *Z.-c. Veitchii*, *leopardina*, *Charlesworthii*, *Wiganiana*, and *Amesiana*, to which may be added the distinct *Zygonisia Rolfeana*.

All *Zygopetalums* and the *Zygocolax* hybrids are liable to the attacks of thrips, which are extremely fond of the young foliage, therefore it is good practice, whether thrips be present or not, to bring the plants into any glasshouse that is being vaporised.

MEXICAN LÆLIAS.—Of these *Lælia anceps* forms the principal, and includes a whole series of beautiful varieties, as *alba*, *Veitchii*, *Leeana*, *Stella*, *Sanderiana*, *Schröderiana*, *Schröderæ*, *Amesiana*, *Chamberlainiana*, *Crawshayana*, *Williamsii*, *Percivaliana*, and many others. Mention should be made of the beautiful *L. autumnalis*, and its almost pure white variety *alba*, also the pretty small-growing *L. albida* and *L. furfuracea*. The two latter come from higher altitudes than *L. anceps*, and require a few degrees less heat while making growths, which is also true of *L. majalis*. When these plants have done flowering, water must be almost withheld, but the pseudobulbs should be kept as plump as possible during their period of

rest. If during the winter months any of these plants begin to send out roots from the last-made bulbs, they may be repotted, but not disturbed more than is absolutely necessary. Owing to the large amount of water these Mexican *Lælias* require whilst growing, exceptionally good drainage is necessary, and the compost for them is good coarse osmunda fibre. They should be potted quite firmly. The temperature of the Mexican house during winter should be about 55° by night, and the air of the house comparatively dry. Fresh air in quantity compatible with the weather should be afforded. *L. rubescens*, perhaps better known as *L. acuminata* or *L. peduncularis*, is a dwarf-growing plant, and is best cultivated in shallow pans, and suspended, when growing, in a sunny position in the warmest house, but now that the plants are at rest, the cooler atmosphere of the Mexican house is best for them.

PERISTERIA ELATA.—This plant, when in bloom, is always of considerable interest, on account of the central part of the flower being likened to a dove. It succeeds best in a stove temperature when growing, but now that the large pseudobulbs are fully made up, the drier and cooler atmosphere of the Cattleya or Mexican house is the best place for it. This species requires a long rest, without which, however strong the pseudobulbs may be, flowering is problematical. The application of water to the plant while at rest needs care, and it is better to keep on the dry side than to afford too much water. Mealy bug often affects this plant.

BRASSAVOLAS.—*B. grandiflora* and *B. venosa* are now coming into flower, and are well worth growing, as their delicious perfume pervades the whole house, especially at night or early morning. Both grow thoroughly well when fastened to teak rafts, and suspended with their terete leaves in pendant position. Grow them alongside of *Lælia rubescens*, and afford them the same kind of treatment.

ODONTOGLOSSUM CITROSMUM.—By this time plants of this lovely species will have completed their growth, after which water should be gradually withheld and in a few weeks quite discontinued. Owing to dryness at the root during the resting period, the pseudobulbs will probably shrivel a good deal, but this is not to be feared, unless carried to excess, it not being injurious to the plant, as when the flowering period again arrives they quickly return to their normal condition after being kept well watered for a few days. *O. Reichenheimii* and *O. læve*, having likewise finished their growths, should receive but little water at the roots during winter. These three distinct *Odontoglossums* should be placed in the lightest and coolest part of the Mexican or Intermediate house during their season of rest.

TRICHOPILIAS.—*T. fragrans*, one of the very best of white sweet-scented Orchids, is now showing its flower spikes, and will soon be in bloom. It is a plant that should be in every collection, for spikes of deliciously-scented

white Orchids suitable for any kind of decoration are not common. This plant requires but a trifle more heat than *Odontoglossum crispum*, so that it may be grown at the warmest end of the Cool house, or in any moist house where the winter temperature does not fall below 50°. Plants of *T. rostrata*, a rather long, slender-bulbed species, which throws many moderate-sized white flowers in the spring months, will also thrive under the same treatment. *T. suavis*, *T. coccinea*, *tortilis*, *crispa*, *marginata*, *lepida*, *Backhouseana*, *Wagneri*, *Galeottiana*, and *T. laxa* all require a few degrees more heat. Most of these plants will have made up their growth, and must not be so often watered, or their pseudobulbs and leaves will quickly become spotted. So long as the bulbs remain plump, very little or no water will be required, but if they show signs of shrivelling, a moderate amount of moisture may be afforded. During their resting period *Trichopilias* should be placed in a cool dry part of the Intermediate house. They are fond of a light position, but not actual sunshine, as the sun will quickly turn the leaves from the deepest green to an unhealthy hue. When showing their flowers remove the plants to a shady position in the *Cattleya* house, as they will open better there, and be less likely to become spotted than if left in the cooler division. *Trichopilias* should be repotted soon after growth commences. Well-drained osmunda fibre is in every way suitable for the roots to run in, and as these from healthy specimens are large and many in number, they will take considerable pot room. In potting, keep the plants well elevated up in the pots, so that they can be easily watered without any fear of moisture lodging in or about the young growths, as these are easily rotted. Those plants now flowering will be best potted early in the spring. When growing freely they will take as much water as any Cool-house Orchid. In cases where from any cause the breaks of the plants started late, and are in consequence now growing, give them a light position in the *Cattleya* house. Some of the smaller kinds may be suspended from the roof on the shady side of the house.

MILTONIAS.—Plants of *M. vexillaria* are growing rapidly at this season, and the roots in full activity, therefore enough water should be afforded to keep the sphagnum on the surface in a fresh growing state. These growing plants will need constant attention, as the young leaves frequently stick to each other so firmly that they soon become crumpled if not watched and carefully separated; and it will be noticed at frequent intervals that at the base of some of the young growths there is a brown, damp-looking outer-sheath which clasps the growth so tightly that the young roots come up inside the sheath into the air, and make no further progress, instead of going down into the compost. This brown covering should be carefully slit in several places, and pulled off in small pieces. At this season the leaves of *M. vexillaria* are prone to damp off at the tips. When this

occurs keep the roots a trifle drier for a few days, afford extra ventilation if possible, and do not damp or sprinkle any moisture between the pots. *M. Roezii* (a slightly warmer-growing species), *M. Phalænopsis*, *M. Bleuana*, and the allied hybrids are also making their growths at this season, therefore the roots will need plenty of moisture. They grow best in a light position in the *Cattleya* house during the winter. *M. Phalænopsis* always does best when suspended with its leaves almost touching the roof glass.

ODONTOGLOSSUMS in the Cool house are also in full growth, and care must be exercised to prevent a check. The lovely sweet-scented white *O. pulchellum* having now completed its new pseudobulbs, the plants should be rested by reducing the quantity of water at the root, as otherwise the roots are prone to decay, and the plant will fail to produce its full complement of bloom. Keep it always in a light position in the Intermediate house. As many plants of *O. crispum* are now showing their flower spikes they should be nightly watched for slugs, which are generally found on the side of the pots or upon the sphagnum moss. Unless searched for assiduously many valuable spikes may be lost.



ORCHIS BRAUNII.



THE history of this showy natural hybrid, which also bears the name of *Orchis latifolio-maculata*, has already been given (*O.R.*, xxi. pp. 201, 202), and now, through the kindness of Mr. R. V. Sherring, F.L.S., we are able to give a figure. The plant was illustrated some time ago (*Proc. Bournemouth Nat. Sc. Soc.*, iii. p. 41, t. 1.), and now the block has been forwarded by Mr. Sherring for reproduction in our pages. The figure was accompanied by the following note:—

ORCHIS LATIFOLIA × MACULATA.—This Orchid was found near Edmonsham by Messrs. Linton and Sherring, and is referred to in *Flora of Bournemouth* (Linton), page 208, and also 10th edit. *London Catalogue*, under No. 1561. Mr. Linton says, “You may safely call the Orchis, *O. latifolio-maculata* (I arrange the names alphabetically), though it presents more of the general features of *O. maculata* than of the other parent.”

The plant has a long and interesting history, which we need not recapitulate, but we may add that it is also known in gardens under the name of *Orchis maculata superba*. It combines well the characters of the two parents, being taller and stouter than *O. maculata*, and having larger flowers, which are lilac-purple in colour, with dark purple markings on the the lip. The leaves are broader than in *O. maculata*, and handsomely blotched with brown. It may be looked for wherever *O. latifolia* and *O. maculata* grow together. There can be little doubt as to its origin, but

experimental proof would be interesting, and we wish that someone would also cross *O. latifolia* with *O. incarnata*, in the hope of obtaining *O.*

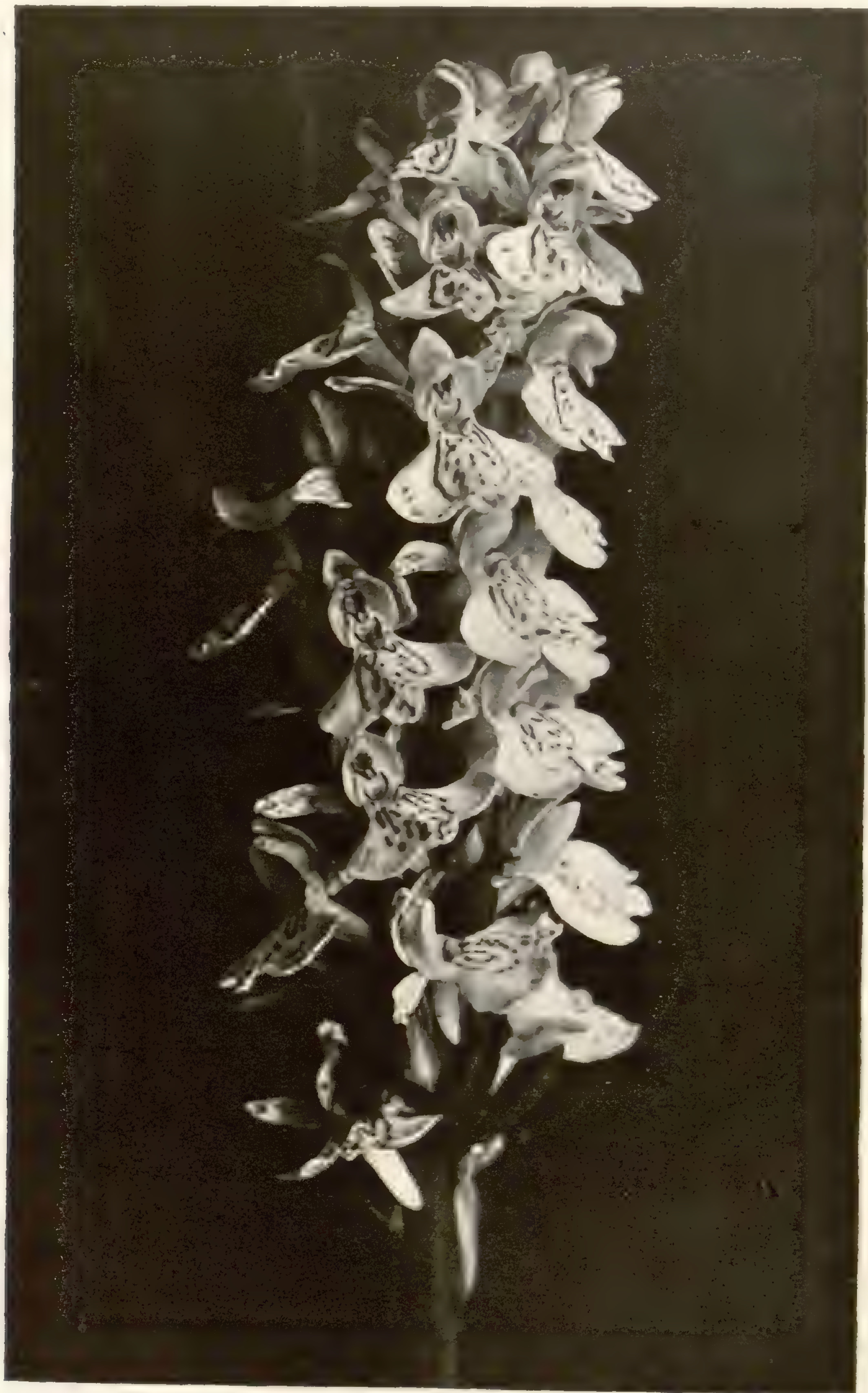


Fig. 45. *ORCHIS BRAUNII*.

praetermissa, Druce (whose history was given at page 207), for there is strong presumptive evidence that this also is a natural hybrid. R.A.R.



SOCIETIES.



ROYAL HORTICULTURAL.

A MEETING was held at the Royal Horticultural Hall, Vincent Square, Westminster, on November 9th, and produced a good display of Orchids, the feature of the meeting being a plant of the Philippine *Vanda luzonica*, exhibited by Messrs. Sander & Sons, we believe for the first time in Europe. The awards consisted of five medals, one First-class Certificate, three Awards of Merit, and one Seedling Commendation. Among plants labelled as previously Certificated we noted *Cypripedium elatior* Shrubbery var. and *Odontoglossum Smithii* (First-class Certificates), *Cattleya Mantinii nobilior*, *Cirrhopetalum gracillimum* and *Odontoglossum Ceres Goodson's* var. (Awards of Merit).

Orchid Committee present:—J. Gurney Fowler, Esq. (in the Chair), J. O'Brien (hon. sec.), Sir Harry J. Veitch, J. Wilson Potter, R. A. Rolfe, R. G. Thwaites, F. J. Hanbury, Pantia Ralli, F. M. Ogilvie, T. Armstrong, W. Cobb, J. Cypher, W. H. Hatcher, W. P. Bound, C. H. Curtis, A. Dye, W. H. White, S. W. Flory, Gurney Wilson, J. Charlesworth, and A. McBean.

J. Gurney Fowler, Esq., Brackenhurst, Pembury, staged a small group of choice things, including *Lycaste Imschootiana* (cruenta $\times$ Skinneri) with a twin-flowered scape, *Sophrocatlælia De Vere Beauclerc* (L.-c. *bletchleyensis* $\times$ S.-l. *heatonensis*), *Cattleya Puritan* (Warscewiczii Frau Melanie Beyrodt $\times$ Maggie-Raphael alba), with pure white flowers and the front of the lip purple, *C. Mantinii* Fowler's var., *C. Fabia* Fowler's var., *Cypripedium beechense*, *Odontoglossum Smithii* and *O. crispum roseum*.

F. M. Ogilvie, Esq., The Shrubbery, Oxford (gr. Mr. W. Balmforth), sent *Cypripedium elatior* Shrubbery var., and *Odontioda Sheila* (parentage unrecorded), bearing a spike of rose-purple flowers, with somewhat darker markings, and the shape and size of *Odontoglossum crispum*.

Pantia Ralli, Esq., Ashted Park (gr. Mr. Farnes), sent *Sophrocatlælia Serbia* (S.c.-l. *pumeximia* $\times$ *C. labiata*), a promising rose-purple flower of intermediate shape.

Messrs. Charlesworth & Co., Haywards Heath, staged a fine group, including good examples of *Cattleya Fabia*, *Portia*, *Antiope*, and *Mantinii nobilior*, *Læliocattleya St.-Gothard*, *Smilax*, *Golden-Oriole*, and *Phœbus* (*C. Iris* $\times$ L.-c. *Cappei*), a rich yellow hybrid, with a crimson front lobe to the lip, *Oncidium oblongatum* and *prætextum*, two distinct forms of *Odontioda Patricia*, *Cypripedium Fairrieanum* and *Rossetti*, *Odontoglossum armainvillierense xanthotes*, *O. Phocis*, and *O. Ceres Goodson's* var. (Silver Flora Medal).

Messrs. J. Cypher & Sons, Cheltenham, staged a fine group, including good examples of *Dendrobium Phalænopsis* and var. *album*, *Cattleya Fabia*, *labiata*, and *C. Bowringiana atrosanguinea*, *Oncidium varicosum Rogersii*, *Læliocattleya Lustre*, *Miltonia candida*, *Masdevallia Veitchiana*, *Cypripedium insigne Sanderæ*, *Gaston Bultel*, *Boltonii*, *Maudiaë*, *C. Tityus superbum*, with five flowers, and numerous others (Silver Flora Medal).

Messrs. Sander & Sons, St. Albans, staged a fine group, including white and coloured forms of *Cattleya Fabia*, *C. Kienastiana*, *Læliocattleya bletchleyensis*, *Pleione lagenaria*, *Saccolabium acutipetalum*, *Cœlogyne brunnea*, the rare *Dendrobium Palpebræ*, *Bulbophyllum hirtum* and *recurvum*, *Ione paleacea*, *Maxillaria nigrescens*, *Odontoglossum tripudians*, and *McNabianum*, *Cypripedium Niobe*, *C. Minos Youngii*, and others (Silver Flora Medal).

Messrs. Stuart Low & Co., Jarvisbrook, Sussex, staged a good group, including *Cattleya Moira*, *Minucia*, *Armstrongiaë*, *Williamsiaë* and *C. Raphaeliaë alba*, two brilliant forms of *Sophrocattleya Doris*, *Cirrhopetalum ornatissimum* with seven inflorescences, *Læliocattleya luminosa*, *Oncidium varicosum*, *Vanda cœrulea*, and others (Silver Banksian Medal).

Messrs. J. & A. McBean, Cooksbridge, staged a choice group, including *Odontioda Devosiana* and *Diana*, *Cattleya Rothschildiana alba*, *Fabia* and *Andreana* (*Pittiaë* × *Dowiana aurea*), most resembling the latter except in having a more undulate lip, *Cymbidium Doris*, *Læliocattleya luminosa*, *Cypripedium Niobe*, a fine form of *Odontoglossum armainvillierense*, and others (Silver Flora Medal).

Messrs. Armstrong & Brown, Tunbridge Wells, sent a good *Odontoglossum Thisbe superbum*, and a well-flowered *Cirrhopetalum gracillimum*.

Messrs. Flory & Black, Slough, sent fine examples of *Læliocattleya Bola* and *Barbarossa*, also *Brassocattleya Morna superba*, a particularly fine form with the fringe of the lip much reduced.

FIRST-CLASS CERTIFICATE.

ODONTOGLOSSUM PEMBURY (*gandavense* × *eximium*).—A very handsome hybrid, bearing a strong spike of eleven finely-shaped flowers, the ground colour being white, with a large solid claret-red blotch on each segment, and the front lobe of the lip white, with the crest yellow. Exhibited by J. Gurney Fowler, Esq.

AWARDS OF MERIT.

BRASSOCATTLEYA ADMIRAL JELlicoe BROADLANDS VAR. (*B.-c. Veitchii* × *C. Rothschildiana*).—A large and handsome form, with light rose pink sepals and petals, and a rosy lilac fringed lip, with a light yellow disc. Exhibited by E. R. Ashton, Esq., Camden Park, Tunbridge Wells.

SOPHROCATTLEYA PEARL (*S.-c. Doris* × *C. Portia magnifica*).—A hand-

some hybrid, the flower having broad, rose-coloured sepals and petals, and a ruby purple lip lined with yellow on the disc. Exhibited by Messrs. J. & A. McBean.

VANDA LUZONICA.—A striking Philippine species, which was described and figured at page 137 of our May issue. It is comparable with *V. tricolor*, and bore an inflorescence of six flowers, the sepals and petals being white, with a narrow transverse purple line at the base, and the lip violet purple in front. Exhibited by Messrs. Sander & Sons.

SEEDLING COMMENDATION.

ODONTOGLOSSUM DORIS NOBILIOR (*Ossulstonii* × *crispum*).—A small seedling, bearing a single flower, which is of excellent shape, and the ground colour white, and bearing clusters of numerous red-purple spots, while the very broad lip is white in front, with some purple blotches in front of the yellow crest. Exhibited by Messrs. Armstrong & Brown.

At the meeting held on November 23rd there was again a good display of Orchids, and the awards consisted of four Medals, one First-class Certificate, and five Awards of Merit. Among plants labelled as previously certificated we noted *Cypripedium Leeanum* J. Gurney Fowler, and *Læliocattleya* Mrs. Evelyn Norrie (First-class Certificates), *Cypripedium Ernest-Read* and *Soprocattlælia Niobe* (Awards of Merit).

Orchid Committee present: J. Gurney Fowler, Esq. (in the Chair), James O'Brien (hon. sec.), Sir Harry J. Veitch, J. Wilson Potter, R. A. Rolfe, Stuart H. Low, F. J. Hanbury, Pantia Ralli, R. G. Thwaites, Walter Cobb, J. Charlesworth, J. Cypher, W. H. Hatcher, C. H. Curtis, H. G. Alexander, A. Dye, S. W. Flory, W. Bolton, R. Brooman White, and Gurney Wilson.

R. W. Rickards, Esq., The Priory, Usk, received a Silver Flora Medal for a small group of remarkably well-grown *Cypripediums*, with a few *Cattleyas*. We noted a fine example of *C. Rossetti* var. *Perfection*, *C. The Baron*, *C. Cyclops* (*Actæus* × *fulshawense*), bearing a large and handsomely blotched flower, *C. Grittleton* (*Curtisii* × *Stevensii*), a richly-coloured form, *C. Satyr* (*Euryades* × *Beryl*), with very numerous small spots, a beautiful example of *C. Fairrieanum* × *Baron-Schröder*, with fine richly-marked flowers, and *C. Mrs. Wm. Mostyn* × *insigne* *Harefield Hall* var., bearing two fine flowers.

J. Gurney Fowler, Esq., Brackenhurst, Pembury (gr. Mr. J. Davis), staged a choice group, including a remarkably strong plant of *Odontoglossum crispum*, with a large branching panicle of about 27 blush-white flowers, a fine *O. Pescatorei*, the handsome *Cypripedium Leeanum* J. Gurney Fowler, *C. Ernest Read*, fine examples of *Cattleya Luegæ* and *C. Tityus*, *Læliocattleya Nelthorp-Beauclerc* (*L.-c. Gottoiana* × *C. Enid*),

bearing four richly-coloured flowers, and L.-c. Mrs. Evelyn Norrie, with deep yellow sepals and petals and a very dark maroon lip.

Sir Jeremiah Colman, Bart., Gatton Park, Reigate (gr. Mr. Collier), sent *Cattleya* Gatton-Ruby (*amabilis* × *Hardyana*), a fine thing most like the latter, and *Læliocattleya* Eyingiana (*C. Bowringiana* × *L. Eyermaniana*), bearing an elongated spike of six lilac-rose flowers.

F. J. Hanbury, Esq., Brockhurst, E. Grinstead, sent *Cattleya* Portiata (*Portia* × *labiata*), having rose-coloured flowers, with a darker lip, and some light yellow in the throat.

R. G. Thwaites, Esq., Chessington, Streatham (gr. Mr. Hannington), sent *Odontoglossum* Chloe (*Groganæ* × *crispum*), bearing round flowers of very dark claret-colour.

E. Whiteaway, Esq., Feltham Lodge, Feltham (gr. Mr. J. Tait), sent a fine flower of *Brassocattleya* William-Pitt (B.-c. *Veitchii* × *C. Octave Doi*).

W. Bolton, Esq., Wilderspool, Warrington, sent a twin-flowered scape of *Cypripedium* Venus var. *Boltonii*, and a few others.

Messrs. Charlesworth & Co., Haywards Heath, staged a very fine group, including two remarkably strong plants of *Odontoglossum spectabile*, each bearing two large panicles of flowers, *O. Doris*, *O. Ceres*, and a very fine *O. Lambeauianum*, two distinct and handsome forms of *Odontioda* Joan, good examples of *Cypripedium* Fairrieanum, *Læliocattleya* Salonika and Colmaniana, several well-bloomed *Epidendrum vitellinum autumnale*, *Sophrocattlæia* Orion (*C. Fabia* × *Scl. Menippe*), having bright rose sepals and petals and a dark crimson-maroon lip, with a row of the graceful *Trichopilia suavis* and *T. Gouldii* in front (Silver Flora Medal).

Messrs. J. Cypher & Sons, Cheltenham, staged a group of choice *Cypripediums* in well-grown examples, with a brilliant example of *Odontioda* Diana, bearing two racemes, in the centre. Among the *Cypripediums* we noted the richly-coloured *C. triumphans*, good examples of *C. Niobe* Westonbirt var., *Rosetti*, *Sanactæus*, forms of *insigne*, *Leeanum*, and others (Silver Banksian Medal).

Messrs. Sander & Sons, St. Albans, staged a good group of showy *Cattleyas* and *Læliocattleyas*, noteworthy among them being *C. Snow-Queen* (*Gaskelliana alba* × *Suzanne Hye de Crom*) and *C. Peacock* (*Hardyana* × *fulvescens*), with examples of *Lycaste mesochlæna*, the striking *Cœlogyne barbata* and *Mooreana*, *Saccolabium calceolare*, *Bulbophyllum hirtum*, *Masdevallia Rushtonii*, *Rodriguezia secunda*, and others (Silver Banksian Medal).

Messrs. Armstrong & Brown, Tunbridge Wells, staged a small group, including a few promising seedling *Odontoglossums* bearing their first flower, *Cattleya* Rhoda Primrose Dame, primrose yellow with some purple eining on the disc of the lip, *Læliocattleya rubens* Orchidhurst var.,

Brassocattleya Apollo (*C. Mendelii* × *B.-c. Veitchii*), *Sophrocattleya Thwaitesii* Orchidhurst var., salmon red, with the disc of the lip yellow and the front lobe crimson, and a few good *Cypripediums*.

Messrs. Flory & Black, Slough, sent *Odontioda Nena* (*Oda. Vuylstekeæ* × *Odm. percultum*), having brilliant claret-red flowers with some white veining in the petals, and *Brassocattleya Merlin* (*B.-c. langleyensis* × *C. Mendelii*), with lilac-pink flowers, also the rare *Trias disciflora*.

Messrs. Stuart Low & Co., Jarvisbrook, sent *Cattleya Boadicea* (*Gaskelliana* × *Hardyana*), and *C. Trianæ Reineckeanæ*, white with a purple lip.

Messrs. J. & A. McBean, Cooksbridge, staged a select group, including the handsome *Sophrocattleya Pearl*, a well-flowered *Odontonia brugensis*, two fine *Cattleya Fabia*, *Odontioda Charlesworthii*, and a few others.

FIRST-CLASS CERTIFICATE.

LÆLIOCATTLEYA ALEX (*L.-c. Tunis* × *C. Dowiana aurea*).—A handsome hybrid, having well-shaped flowers, with orange-yellow sepals and petals, and a ruby-red lip, with some yellow on the disc. Exhibited by Messrs. Stuart Low & Co.

AWARDS OF MERIT.

CATTLEYA MAGGIE-RAPHAEL SANDHURST VAR.—A very fine form of the alba type, having white sepals and petals and a richly-coloured lip. Exhibited by Messrs. Armstrong & Brown.

CYPRIPEDIUM IONA PRIORY VAR. (*bellatulum* × *Fairrieanum*).—A richly-coloured variety, the flowers being copiously veined with violet purple on a cream-white ground. Exhibited by R. W. Rickards, Esq.

CYPRIPEDIUM PRIORY-BEAUTY (*Earl of Tankerville* × unknown).—A very fine hybrid, the broad white dorsal sepal having a light green base, and large purple-brown blotches in the centre, while the broad petals and lip are honey-yellow, tinged with brown. From R. W. Rickards, Esq.

CYPRIPEDIUM SWALLOWTAIL (*Fairrieanum* × *M. de Curte*).—A fine thing, with flowers regularly marked with brown on a light green ground, somewhat resembling *C. Arthurianum*. Exhibited by R. W. Rickards, Esq.

LÆLIOCATTLEYA KING-MANOEL (parentage unrecorded).—A richly-coloured hybrid of moderate size, with copper-orange sepals and petals, and a deeply three-lobed lip, which is ruby purple in front with a yellow isthmus. Exhibited by J. Gurney Fowler, Esq.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

At the meeting held at the Coal Exchange, Manchester, on November 4th, the members of Committee present were: Rev. J. Crombleholme (in the Chair), Messrs. R. Ashworth, A. R. Handley, A. Hanmer, J. Lupton, D. McLeod, W. J. Morgan, W. Shackleton, S. Swift, H. Thorp, and H. Arthur (Sec.).

R. Ashworth, Esq., Newchurch (gr. Mr. W. Gilden), was awarded a Large Silver Medal for a group of *Cattleya labiata* varieties, *C. Sylvia*, *Thyone*, *Fabia* var. *Hussar*, *Hardyana alba*, and *Alcimedea superba*, *Sophrocattleya Saxa* var. *Salonika*, *Odontoglossum crispum xanthotes*, *virginale* *Ashlands* var., and *Olympus*, *O. amabile* *Ashworth's* var., *Topsy* and *Vulcan*, *O. percultum* *Uncle Tom*, *O. Ceres* var. *Rossendale*, *Cypripedium Actæus*, *Thalia giganteum*, *Arthurianum Sanderæ*, *Thisbe*, *Troilus*, *eboriacum*, *insigne Sanderæ*, and others.

Col. J. Rutherford, M.P., Blackburn (gr. Mr. Lupton), staged a group composed principally of *Cattleya labiata* in variety, including *Cyme*, *R. I. Measures*, and *R. le Doux*, a fine *C. Dowiana aurea*, *C. Portia*, *Epidendrum vitellinum autumnale*, *Oncidium varicosum Rogersii*, *Cymbidium Tracyanum*, and others, a Silver Medal being awarded.

O. O. Wrigley, Esq., Bury (gr. Mr. E. Rogers), staged a fine group of *Odontoglossum crispum* in variety, and *Epidendrum vitellinum autumnale* (see Certificates).

H. J. Bromilow, Esq., Rainhill (gr. Mr. W. J. Morgan), staged a fine plant of *Cypripedium Reginald Young*, and a plant (home raised) of *C. bellatulum* and *Hitchinsia*.

Messrs. Sander & Sons, St. Albans, were awarded a Special Vote of Thanks for an exhibit of fine varieties of *Cattleya Fabia* var. *alba* and *Arethusa*, *C. Rothschildiana alba*, with *Cypripedium Corsair*, *Euphrates*, *insigne Ariel*, and *nitens-Leeanum* var. *Eros*.

Messrs. A. J. Keeling & Sons, Bradford, staged *Cypripedium keighleyense*, *Hitchinsia magnificum*, *La France*, *grittletonense*, and *insigne Surprise*, with *Odontioda Schröderi*.

Mr. W. Shackleton, Highfield, Bradford, staged a fine variety of *Odontioda*, with seedling *Odontoglossums*.

AWARDS OF MERIT.

Cypripedium Actæus var. *Arthur Oakshott*, from Mrs. le Doux, West Derby (gr. Mr. J. W. Fletcher).

Brassocattleya The Czar (*C. Fabia* × *B.-c. Veitchii*), from R. Ashworth, Esq.

Cypripedium Aurobe (*aureum* *Edippe* × *Niobe*), from P. Smith, Esq., Ashton-on-Mersey (gr. Mr. E. Thompson).

FIRST-CLASS CULTURAL CERTIFICATE.

To Mr. E. Rogers, gr. to O. O. Wrigley, Esq., for about 30 plants of *Epidendrum vitellinum autumnale*.

At the meeting held on November 18th the members of Committee present were: Rev. J. Crombleholme (in the Chair), Messrs. J. Cypher, P. Foster, A. R. Handley, A. Hanmer, H. Thorp, and H. Arthur (Sec.).

Owing to the severe weather, the exhibits were not so numerous as usual, the attendance also being greatly affected.

R. Ashworth, Esq., Newchurch (gr. Mr. W. Gilden), and P. Smith, Esq., Ashton-on-Mersey (gr. Mr. E. Thompson), staged several fine things, all of which appear in the Award List.

Messrs. Cypher & Sons, Cheltenham, staged a nice group, to which a Silver Medal was awarded. It included *Cypripedium insigne* Dorothy and Sanderæ, *C. Leeanum* Corona and *Clinkaberryanum*, *C. Dreadnought*, *elator*, *Priam*, *Niobe Westonbirt* var., *Mme. Jules Hye*, *Minos Veitchii*, *Gaston Bultel*, *Felicity*, and *Oberon*, *Cattleyas* of the *labiata* section, *Oncidium varicosum Rogersii*, and others.

Messrs. A. J. Keeling & Son, Bradford, staged *Cypripedium Charlesworthii* var. *La Milo*, *C. Oberon*, *Hoyleanum superbum*, *Hitchinsiae magnificum*, with a number of unnamed seedlings, a collection of cut flowers of varieties of the *insigne* section and others.

FIRST-CLASS CERTIFICATE.

Sophrocattleya Doris Cobb's var., the largest flower of its kind yet seen, and of good form and colour, from R. Ashworth, Esq.

AWARDS OF MERIT.

Cattleya labiata var. *Mudros*, and *C. Fabia alba*, Ashland's var., both from R. Ashworth, Esq.

Cypripedium Priam Haddon House var., and *Radianshall* (*radians* × *insigne* Harefield Hall var.), both from P. Smith, Esq.

AWARD OF APPRECIATION.

Odontoglossum promerens var. *Roundhead* (*eximium* × *crispum*), a home-raised seedling with full round flower and evenly blotched, flowering from a very small plant, from R. Ashworth, Esq.

	ORCHID NOTES AND NEWS.	
---	------------------------	---

THE Royal Horticultural Society's last meeting of the year will be held at the Royal Horticultural Hall, Vincent Square, Westminster, on December 7th, when the Orchid Committee will meet at the usual hour, 12 o'clock noon.

The Manchester & North of England Horticultural Society will hold meetings at the Coal Exchange, Manchester, on December 2nd and 16th. The Committee meets at noon, and the exhibits are open to inspection of members and the public from 1 to 4 p.m.

THE RED CROSS FUND.—We have received from an old subscriber an appeal for this thoroughly deserving fund. It is suggested that many

sections of the community bound together by various descriptions of common interest have helped, and that Orchid growers might raise a fund of their own for this purpose. It is a praiseworthy object, and we know that it has already been considered, but there are difficulties in organising a special fund, and, moreover, we know that Orchidists have largely supported their own local funds. At the same time there may be readers who are not in touch with local funds, and we shall be happy to forward to the proper quarters any contributions that may be entrusted to us for this purpose. We specially mention this, because sympathisers in America have answered our appeal to the Prince of Wales' Fund for sufferers by the war.

It will be seen from our advertisement pages that there is a vacancy in the island of Jersey for an Orchid grower, who is required to take charge of an amateur's collection. The locality, we believe, is a favourable one, and it should afford a good opening for a competent man who is seeking such a situation.

SOPHROCATLÆLIA ORION.—A handsome hybrid from *Cattleya Fabia* × *Sophrocatlælia Menippe*, of which a flower has been sent by Messrs. Charlesworth & Co., Haywards Heath. It has an expanse of $3\frac{3}{4}$ inches and the sepals and broadly ovate petals are bright rose-purple, while the lip, which measures $2\frac{1}{4}$ inches long by $1\frac{1}{2}$ inches broad, is of an intense velvet crimson. The *Sophronitis* influence is largely eliminated.

ANSWERS TO CORRESPONDENTS.

[Orchids are named and questions answered here as far as possible. Correspondents are requested to give the native country or parentage of plants sent. An ADDRESSED postcard must be sent if a reply by post is desired (abroad, reply postcards should be used). Subjects of special interest will be dealt with in the body of the work].

E.W.T.—*Lanium Berkelevi*, Rolfe.

E.H.C.—*Dendrochilum uncatum*, Rchb. f., a graceful Philippine species.

AMATEUR.—The subject would be particularly interesting, as it lies at the root of all successful Orchid culture. We will deal with it in an early issue.

Photographs received, with thanks.—R.W.R., R.V.S.

J.H.—The rule is that geographical adjectival names are written without a capital letter, thus, *Disa langleyensis*, not *D. Langleyensis*, is correct.

We have to thank an American correspondent for a contribution to the Prince of Wales' Fund for sufferers by the war, which has been forwarded to the proper quarter.

Owing to pressure on our space by the annual Index, several communications are held over for a future issue, and we have to thank correspondents for several interesting suggestions, which are under consideration.

INDEX.

- ADAPTATIONS, 200, 227, 290, 291, 323, 324.
 Adioda, 293 ; St. Fuscien, 293.
 Adoglossum, 293 ; Juno, 293.
 Aërides, 77, 301 ; Fieldingii, 231 ; Houlettianum Sanderæ, 244 ; illustre, 267 ; Lawrenceæ, 14, 361 ; maculosum Schroederi, 265, 266, 273 ; odoratum, 65 ; Schroederi, 265, 266.
 Air plants, 65.
 Albinism, 91.
 Alternation of generations, 198, 199.
 Amateur's Collection, 10, 38, 89, 124, 133, 165.
 American Notes, 351.
 Angiospermæ, 199.
 Angræcum birrimense, 344.
 Anguloa brevilabris, 292 ; Cliftonii, 226, 255, 292, (× brevilabris), 292 ; Clowesii, 177 ; Rolfei, 226, 255, 292 ; Ruckeri, 255, 292.
 Anguloas, 141.
 Anæctochilus, 318 ; lanceolatus, 318 ; luteus, 318.
 Answers to Correspondents, 32, 64, 96, 128, 160, 192, 224, 256, 288, 320, 352, 376.
 Antholithes pediloides, 154.
 Ants and Orchids, 222.
 Arundina subsessilis, 68.
 Arundinas, 77.
 Atmospheric conditions, 193.

 BAILEY, Orchids of Queensland, 283.
 Banks, early Orchid Culture, 66.
 Barker, Mr. J. T., 41, 42.
 Barkerias, 261.
 Bateman, Dies Orchidianæ, 5 ; on Hybrids, 5 ; Lecturets, 231.
 Bees fertilising Cattleyas, 136.
 Belgian Horticulturists, help for, 93.
 Bernard, on Neottia, 66.
 Bifrenaria aurantiaca, 286 ; bicornaria, 286 ; fragrans, 291 ; inodora, 291.
 Bletia grandiflora, 232 ; speciosa, 232, 233.
 Blinds, 107.
 Book, Review of—
 Ames, *Orchidaceæ*, 328.
 Botanical Fugitive, 257.
 Brassavola nodosa × Cattleya Enid, 247.
 Brassavolas, 365.
 Erassia, 284 ; Forgetiana, 283 ; Lawrenceana, 284 ; L. longissima, 284 ; longissima, 273, 274, 284.
 Brassocatlælia, 349, 355 ; Albatross, 349 ; Ariel, 349 ; Astarte, 349 ; beardwoodiæ, 349 ; Beaucis, 349 ; Cooksonii, 349 ; Dietrichiana, 349 ; elatior, 350 ; Fragneana, 350 ; Freda, 127 ; General French, 310 ; Gladius, 350 ; Golden-Horn, 127 ; Hylas, 350 ; Joan, 350 ; King-Emperor, 350 ; Lawrencei, 349, 355 ; Leeana, 350 ; Brassocatlælia—
 Morna, 350 ; Nola, 350 ; Pink Beauty, 350 ; Surprise, 350 ; Thompsonii, 350 ; Winifred, 350 ; Wotan, 350.
 Brassocatlælias, 349.
 Brasso-Catt-Lælia × Lindleya-elegans, 349.
 Brasso-Cattleya-Lælia, 349.
 Brasso-Lælio-Cattleya, 349, 355 ; Prince of Wales, 350.
 Brassocattleya Admiral Jellicoe Broadlands var., 370 ; A. J. Pink Pearl, 27 ; Andre-Marion, 277 ; Apollo, 373 ; Big-Ben, 308 ; Czar, 307, 374 ; Cliftoni albens, 58 ; C. Fowler's var., 151 ; C. Sir John French, 118 ; Digbyano-Schroederæ (× C. Schroederæ), 117 ; D.-S. Shrubbery var., 116 ; Doris, 310 ; Eileen, 59 ; Griselda, 127 ; Ida, 26 ; Mars, 310 ; Merlin, 373 ; Miguel, 277 ; Mrs. J. C. Hurst var. alba, 309 ; Nestor, 310 ; Orpheus (× C. Warscewiczii alba, 270 ; Pallas, 340 ; sulphurea amabilis, 83 ; Vanessa, 147 ; Vilmoriniana Shrubbery var., 151.
 Bryophyta, 198.
 Bulbophyllum Balfourianum, 226, 247, 256 ; cupreum, 352 ; dichromum, 119 ; Fletcherianum, 3, 226 ; Micholitzii, 309 ; minutissimum, 189, 190 ; moniliforme, 190 ; Odoardi, 190 ; pentastichum, 181 ; psittacoides, 356 ; viridiflorum, 223.
 Bulbophyllum, section Minutissimæ, 190 ; sect. Odoardiana, 190.
 Bulbophyllums, minute, 189, 193.
 Butterworth, J. T., 126.

 CALANTHE Branchii, 3 ; Jezebel, 61 ; kewensis, 37 ; Regnieri, 362.
 Calanthes, 19, 54, 75, 108, 260, 336, 362 ; deciduous, 174 ; evergreen, 174.
 Calendar of Operations, 18, 50, 74, 107, 139, 192, 210, 235, 259, 299, 331, 362.
 Camarotis obtusa, 223.
 Catasetum, 110 ; Bungerothii, 295, 296 ; B. aureum, 223 ; B. Randii, 296 ; macrocarpum, 37 ; pileatum, 277, 295, 296 ; Randii, 339 ; scurra, 17.
 Catasetums, 14, 211, 213, 300 ; and bees, 14.
 Cattleya Acis, 339 ; Adonis, 324 ; Ajax var. Primrose Dame, 340 ; Alcimeda, 277 ; amabilis alba, 343 ; a. Fowler's var., 308 ; Andreana, 370 ; Ariel, 343 ; Ashtoniana, 308 ; A. alba, 289 ; Ballantineana (nat. hyb.), 282 ; Beryl, 340 ; Bowringiana, 321 ; Brenda, 153 ; Britannia var. Melanie, 343 ; Browniæ Gatton Park var., 340 ; Dowiana (hybrids of, 321, (influence of), 321, (lip of), 321, (× Schroederæ), 159 ; Drapsiana vinosa, 276 ; Enid, 324 ; E. Firmin Lambeau, 82 ; Eros, 243 ; Fabia alba, 321 ; F. Vigeriana, 321, 341 ; Falco, 340 ; Gatton Ruby, 372 ; gigas Frau Melanie Beyrodt, 270 ; Gladys, 307 ; Grahami, 233 ; Gratrixiæ alba, 182 ; guttata, 215 ;

Cattleya—

Hardyana Fowler's var. 277; H. His Majesty, 275; Harold Fowler's var., 274; intermedia, 136, (fertilised by bees), 136; intricata, 215; Katie, 307; King-George, 310, 314, 321; labiata, 281; l. Purity (× Gask. alba), 26; l. Warscewiczii rochelensis, 271; Lady Joffre, 29; Lady-Veitch, 310, 329; L.-V. Mrs. S. Gratrix, 344; Leopoldii, 215; L. pernambucensis, 281; Lueddemanniana alba, 345; Luegæ, 63; L. Fowler's var., 342; Maggie-Raphael alba, 56; M.-R. Sandhurst var., 373; Mantinii, 321; Maronii, 317; Mendelii var. Mrs. Smee, 246; M. Queen Mary, 185; Moira rubra, 342; Mossiæ, 116; M. Wageri, 217; Murillo, 29; Naidia, 310, 339; O'Brieniana alba, 26; Olympus, 116; Orduna, 247; Paula, 246; Peacock, 372; Peetersii alba, 343; Phyllis, 36, 55; picturata, 215; Pittiana (× Bc. Fournieri), 61; Portiata, 372; Pretoria, 27, 30; Puritan, 369; Queen of Sheba, 275; Rex, 282, 314, 315; Rhoda Czarina, 307; Rutilant, 317; scita, 215; Seligeri, 121; Sibyl, 166, 168; Snowdon, 312; Snow Queen, 372; superba alba, 247; Sybil, 166, 168, 277, 319 (varieties of), 275; S. rotundobellum, 276, 319; S. Scintillant, 274, 319; S. W. R. Lee, 277; Tityus var. Rex, 185; Trianae, 72, 124; T. alba Queen Elizabeth, 83; T. Griselda, 115; triumphans, 313, 321, 322; t. Maron's var., 313; Venus var. Princess Mary, 307; Victoria-Régina, 280, 282; Vigeriana, 317; Walkeriana, 52; Warscewiczii alba, 270, 271, 272; W. Frau Melanie Beyrodt, 270, 278; W. Madame Melanie Beyrodt, 271; W. Mrs. E. Ashworth, 245, 268; W. Our Queen, 271; W. rochellensis, 271; W. Virgin Queen, 244; W. White Queen, 271; W. Wigan's var., 271.

Cattleya House, 142.

Cattleyas, 53, 213, 237, 333; ^{under}Autumn-blooming, 352; compost for, 133; fertilised by bees, 136.

Cell-gamules, 167, 168.

Cephalanthera rubra, 226.

Chemistry of flower colour, 91.

Chondropetalum Fletcheri, 315.

Chondrorhyncha Lipscombiæ, 17.

Chromosomes, 167, 227, 228, 230.

Chromosomic development, 230.

Chysis, 53.

Cirrhopetalum formosanum, 68; gracillimum, 356, (fertilisation of), 356; psittacoides, 356.

Cirrhopetalums fertilised by flies, 357.

Cleisostoma secundum, 245.

Cœlias, 21.

Cœlogyne burfordiensis, 187; cristata, 111, 261; Dayana, 247; intermedia, 25; Micholitzii, 309; Mooreana, 21, 49; pandurata, 185; Sanderæ var., 182; siamensis, 68.

Cœlogynes, 21.

Colour of flowers, 91.

Conjugatæ, 156.

Conjugation, 168, 197.

Constantin on Orchid Cultivation, 65.

Corona Keffordii, 130.

Coryanthes macrantha, 217, 222, 223.

Cowley, Herbert, 351.

Cross-fertilisation, 291, 298.

Crosses, reciprocal, 220.

Cycnoches, 110.

Cymbidium aloifolium, 252, 253; Butterfly, 94; Castor, 36; Coningsbyanum Brockhurst var., 57; Finlaysonianum, 252; Floryi, 36, 58; Garnet, 157; insigne album, 160; Jasper, 157; Mastersii album, 352; pendulum, 246, 252, 253; p. brevilabre, 253; Pollux, 94; Queen of Gatton, 84; sandhurstiense, 307; Sappho, 178; Schlegelii, 95; S. Fowler's var., 85; Seamew, 158; Veitchii concolor, 118; Woodhamsianum Aurora, 84.

Cymbidiums, 175, 335.

Cypripedium alportense (× Fairrieianum), 60; Archimedes, 56; Argo-Lawrenceanum, 278; Arthurianum langleyense, 57; aureum, 47; Aurobe, 374; Barbeyi, 268; bellatulum (× Hitchinsiae), 374; Beryl (× Euryades), 28, (× Sallieri), 58; Bessie, 59; Black Watch, 116; Boltonii, 63, 64; Bryan (× callosum), 339; Butterfly, 118; Calceolus (× macranthos), 268; callosum Sanderæ, 330; Christopher Grand Duke Nicholas, 57; Connie, 358; Curtisii (× vexillarium), 320; Curtisii Sanderæ, 218, 222, 225, 256; Cyclops, 371; debile, 268; Deedmanianum, 46; Desdemona Haddon House var., 87; Duke of Connaught Ward's var., 29; Earl of Tankerville (× alportense), 359, (× Euryades), 24, (× Fairrieianum), 60; edgbastonense, 46; Euphemia, 58; Fairrieianum, 328; 337, 343, (× Baron Schröder), 371; Franchetii, 268; Gloria, 339; G. F. Moore (× Leeaenum), 359; Grittleton, 371; Hera, 318; Hildalgæ, 343; Hyeaenum, 46; insigne (as a parent), 43, (cult. of, 43, (prize essay), 42, (yellow), 43; i. Harefield Hall var. (× Pollettianum) 42; i. Oddity (× Watsonianum), 320; Iona, 58, 358; I. Priory var., 373; japonicum, 268; Keeleyi, 27; King Albert, 28; Knightiæ, 268; Lady Evelyn James, 51; Lathamianum, 46; Lawrenceanum Hyeaenum, 46; Leeaenum (× bellatulum album), 60, (× Clio), 24, (× Druryi), 84, (× Winnianum), 121; Longford Hall, 62; Lord Fisher, 86; Lord Wolmer (× Charlesworthii), 60; luteum, 269; Maudia (hist.), 163; Melas, 29; microsaccos, 268; Monte, 58; Mrs. Wm. Mostyn (× insigne H. Hall var.), 371; Niobe (× Fairrieianum), 24; nitens (× Æson), 24; nito-Cynthia, 27; nobilior, 62; papuanum, 287; Peter, 116;

Cypripedium—

Peteri, 121; Priam, 40, 41; Priory Beauty, 27, 373; Pyramus, 359; P. Chardwar Ideal, 57; Pyrrha, 58; Queen of the Belgians, 29; Radianshall, 375; Sanderæ, 330; Sanderianum, 306, 330; Satyr, 359, 371; Saundersianum, 326, 330, 346; speciosum, 268; Stonei, 250; S. platytanium, 243, 250, 330; St. Swithin, 148; Suzanne, 27; Swallowtail, 373; tibeticum, 269; Vashtii, 59; veganum, 267; ventricosum, 268; Venus Boltonii, 48, 354; Wardiæ, 268; Warnham Fairy, 275; Wilsonii, 268; Yatabeanum, 267; Ypres, 35.

Cypripediums, 10, 53, 211, 354; colour of, 354; decorative value of, 354; hardy, 267; improvements in, 354; seedling, 24; seeds, 352; treatment of, 359; warm-growing, 172; winter-flowering, 40, 354.

Cyrtopodiums, 212.

Cytisus Adami, 230.

Cytoplasm, 227.

DARWIN and Evolution, 290; Fertilisation of Orchids, 290.

Darwinism, passing of, 290.

Dendrobium Alpha, 149; arachnites, 181; bigibbum Lady Colman, 340; chrysotis, 316; Devonianum, 113; Goldiei, 13; Harveyanum, 120; Hookerianum, 316; H. Fowler's var., 308, 317; Maccarthiæ, 236; Miss F. E. King, 115; nobile (peloriate), 158; n. albiflorum, 132; n. album, 132; n. giganteum (seedling), 158; n. nobilius ($\times$ chessingtonense), 119; n. virginale, 132; Phalaenopsis, 143; speciosum, 224; taurinum, 10, 12; Thompsonii, 123; Thwaitesiæ Veitch's var., 121; Tofftii, 9; Triumph, 59.

Dendrobiums, 76, 111, 173, 235, 301, 362; in Mexico, 12; racemose, 154.

Diacrium bicornutum, 12; ($\times$ C. Louryana, 242).

Dicotyledons, 200.

Disa Blackii, 169, 171, 185; Clio, 170; Diore, 170; Elwesii, 171; grandiflora, 169, 171, 239; g. aurea, 251; kewensis, 169, 170; k. superba, 170; langleyensis, 169, 170; Luna, 170; Premier, 169, 170; tripetaloides, 169, 171; Veitchii, 169; Watsoni, 170.

Disas, 333; hybrid, 169.

Diseases, 103.

EPIDENDRUM, 65; aloides, 252; aloifolium, 252; amabile, 255; erubescens, 234; O'Brienianum (self-fert.), 153; Parkinsonianum, 52; pendulum, 252; porpax, 223; vitelinum, 231; xanthinum ($\times$ Boundii), 120.

Epidendrums, 238.

Epiphytes, 65.

Epiphronitis Veitchii, 303.

Epipogon aphyllum, 226.

Eria, 45; sect. Bambusifolia, 45.

Eria bambusifolia, 45.; barbata, 326, 327.

Eriodea, 327.

Eriodes barbata, 326, 327; hairs of Eriodes, 327.

Eulæma cayennensis, 136.

Eulophia guineensis, 110; nuda, 245; paniculata, 223.

Eulophiella Elisabethæ, 145; Peetersiana, 216.

Events of 1914, 1.

Evolution, 168, 290, 323, 324; and Mendelism, 67; and Orchid culture, 65, 67; the other way about, 258.

Evolutionary process, 168.

FERTILISATION, 168, 199, 200; by insects, 200.

Forget, Natural Hybrid Cattleyas, 282.

Fowler, Mr. J. Gurney, 95.

Fungi and Orchids, 67.

GAMETES, 227, 228, 229, 230.

Gemmules, 167.

Germ plasm, 167, 168, 229.

German Orchid Society, 34.

Goodyera repens, 317.

Graft hybrids, 229, 230.

Gramatophyllum Cominsii, 8; fastuosum, 7; giganteum, 7; Fenzlianum, 106; leopardianum, 7; macranthum, 7; pantherinum, 7, 8; papuanum, 8; speciosum, 6, 7; Wallisii, 7.

Grammatophyllum, section Gabertia, 6.

Gymnospermæ, 199.

HABENARIA elatius, 32; Havilandii, 31; Hewittii, 31; militaris, 291; pusilla, 291; Robinsonii, 95.

Habenarias, 212.

Harvey, J. C., Mexican Orchids, 12.

Heat, artificial, 332.

Heating apparatus, 240.

Heredity, 323, 324; mechanism of, 166, 196, 227; study of, 200.

Highbury Orchid Collection, 128; Sale of, 138.

Holmes on Unit-characters, 323.

Hudson, Mr. James, 352.

Hurst, Major, Principles of Genetics, 318.

Hybrid, 230; a mosaic, 229; derivatives, 229; earliest tropical, 266.

Hybridisation, 66, 92, 131, 191, 196; and reversion, 228; mechanical obstacles, 230; not a new process, 229.

Hybrids, 229; and Mr. Bateman, 5; and botanists, 5; and Mr. Huntley, 5; and nomenclature, 131; cause of variation, 229; Conjugate, 130; cryptohybrids, 92; generic, 355; intermediate, 168, 229;

Hybrids—

nomenclature of, 355; of 1914, 2; of unrecorded parentage, 164, 268; Perjugate, 130; primary, 220, 230, (and secondary), 130; recrossed, 229; secondary, 230; self-fertilised, 229; separation of character in, 229; specific names of, 35; reproductive cells of, 229; records of, 132, 288; sterile, 131; true from seed, 229; two classes of, 130; uniform secondary, 229; vigour of, 23.

INCOMPATIBILITY, 229, 230.

Inheritance, 166.

Insect Pests, 104.

International Botanical Congress, 34.

Ione flavescens, 68.

Ipsa speciosa, 75.

KARYOKINESIS, 167.

Keeble, flower colour, 91.

Krænztlinella, 326; muricata, 326; platyrachis, 326; rufescens, 326; sororia, 326; Tunguraguæ, 326.

LÆLIA albida, 364; anceps, 90; ancibarina, 36; Batemaniana, 5; elegans, 282; furfuracea, 364; Gouldiana, 282; harpophylla (× pumila), 282; Jongheana, 282; Lundii, 37; majalis, 231-234, 364; monophylla, 79; Susanna, 37.

Lælias, Mexican, 50, 364.

Lælio-Brasso-Cattleya, 349.

Læliocattleya, 355; Alex, 373; Anaconda, 178, 179; Anzac, 341; apricosa, 218; Armada, 279; Balmoral, 339; Beatrice, 247; Britannia var. Melanie, 152; callistoglossa (× C. Schroederæ), 121; Canhamiana Fowler's var., 220; Carlina, 247; Cecilia, 56; Chamberlainiana, 138; Chavica, 116; Clarkii, 215; Cornelia, 28; Corneliensis, 149; Dietrichiana, 349; Domallus, 218; Eileen, 309; Eldorado, 149; elegans, 136, 282; Emmeline, 245; Evansiæ, 127; eximia delicatissima, 277; Eyingiana, 372; Fascinator-Mossiæ var. Imogene, 151, 179; F.-M. Moonlight, 226, 246; flammea, 116; George-Woodams (× Cattleya Rothschildiana), 273; Golden-Queen, 276; Gold-Star, 185; Harrianceps, 247; Helius, 186; Hoylei, 224; Isabel-Sander Gatton Park var., 151; Ivanhoe, 150; J. F. Birkbeck Fowler's var., 121; King-Manoel, 373; luminosa, 292, 324; McBeaniana, 187; Minnie de Larringa, 343; Mrs. Geoffrey Tate, 344; Mrs. Harold King, 278; Mrs. McMaster splendens, 310; Nelthorp-Beauclerc, 371; Nena, 148; Nestor, 308; Numidia, 340; Pearl, 310; Phoebus, 369; Prunella, 274; Rachael, 311; Roger-Sander, 218; Rossetti, 310; Salonika, 341; Schilleriana, 136, 282; Serbia, 339;

Læliocattleya—

Sibyl Low's var., 185; Sir Douglas Haig, 28; Soulangé, 310; St.-Gothard (× C. Empress-Frederick), 339; Teucra Mrs. Mary Stokes, 183; Thyone Fowler's var., 274; Titania, 127; Transylvania, 185; Truffautiana, 292, 324; ra, 127.

Lælio-Cattleya, 355.

Læliopsis domingensis, 52.

Lanium Berkeleyi, 357.

Lawrence, Sir Trevor, 8.

Linden, J., 69.

Lindley Medal, 231.

Lindley, Orchidaceæ Lindenianæ, 69.

Liparis bicuspidata, 160; Lœselii, 226.

Listrostachys Brownii, 320; forcipata, 223.

London Botanical Congress, 355.

Lycaste Arthuriana, 278; Balliæ, 88; Cappei, 89; Charlesworthii, 89; gigantea, 241; Janetæ, 118, 125; Janet Ross, 125; Mary Gratrix, 89; Rossiana, 125; schoenbrunnensis, 88.

Lycastes, 142, 334.

MALAXIS paludosa, 226.

Manchester and North of England Orchid, 27, 59, 84, 122, 151, 186, 220, 248, 278, 311, 342, 373; Awards, 188, 221.

Marconi, Dr. E., *Histoire de l'Involution Naturelle*, 268.

Masdevallia Courtauldiana, 209; Forgetiana, 283; Kimballiana var. Pourbaixii, 149; muscosa, 262; platyrachis, 325, 326; racemosa, 286; rosea, 209; xipheres, 262.

Maxillaria acutifolia, 158; picta, 347.

Maxillarias, 239.

Mechanism of heredity, 166, 196, 227.

Megaclinium minutum, 223.

Mendelian factors, 318.

Mendelism and Evolution, 67.

Mendel's work, 323.

Miltonia, 293; Charlesworthii, 249, 293; C. Beatrice, 147; Cooperi, 293; Eurydice, 187; Hyeana Ashlands var., 220; H. F. M. Ogilvie, 186; Isabel-Sander, 293; Leeana, 278; Mrs. Geoff. Tate, 153; Sanderæ, 293; vexillaria, 140, 238, 287; v. dulcis, 357; v. Leopoldii, 357.

Miltonia, butterfly-like blotch of, 250.

Miltonias, 20, 78, 366.

Miltoniada, 293; Harwoodii, 295.

Monocotyledons, 200.

Moorea, 80; irrorata, 80.

Mormodes, 110.

Mutation theory, 92.

Mutations, 230, 318.

NAMES, 292; commemorative, 132; difficulty of finding, 132; florists, 131; geographical, 376; incorrect, 36; of a single word, 292; specific, 131, 132, 292; ugly, 292; varietal, 131, 132; well chosen, 291.

Natural Selection, 290, 291, 322, 323.

Neomoorea, 80 ; irrorata, 80, 84, 241.

Neottia, birds nest, 66.

Nephelaphyllum pulchrum sikkimense, 223.

Neuwiedia, 268.

Nomenclature, 35, 324 ; and Anger, 34 ; and War, 34, 35 ; Brussels rules, 131, 355 ; confusion in, 325, 355 ; Court of, 35 ; go-as-you-please, 324 ; international rules of, 355 ; Law of Priority, 291, 292, 324 ; of Hybrids, 4, 355 ; orderly, 35, 36, 292, 355 ; Paris Rules, 355 ; rational, 292 ; R.H.S. rules, 132 ; Rules of, 36 ; use of hyphen, 355 ; Vienna Rules, 355 ; Vienna Rules, 355 ; and Brussels rules, 35.

Novelties, 353.

Nucleus, bearer of hereditary qualities, 227 ; of the cell, 167, 228 ; of the gametes, 230 ; of the vegetative cell, 230 ; sexual, 228 ; vegetative, 228.

OBITUARY—Ashton, F. W., 356 ; Bailey, Frederick Mason, 283 ; Ball, C. F., 348 ; Cook, E. T., 191 ; De Crom, Jules Hye, 87 ; Forget, Louis, 281 ; Harvey, F. W., 305 ; Harvey, J. C., 47, 144 ; Hunter, G., 192, 206 ; Latham, W. B., 46 ; Lonsdale, Edwin, 306 ; Rothschild, Baron Nathan Meyer, 135 ; Witt, Prof. Otto N., 135 ; Wood, Dr. J. Medley, 348.

Octomeria crassifolia, 8 ; densiflora, 8 ; ruscifolia, 8.

Odontioda, 97 ; Adrastia, 99, 134 ; Adrastus, 134 ; Armstrongii Peerless, 121 ; Aspasia, 98, 182 ; Atalanta, 184 ; bella, 98 ; Brackenhurst, 99 ; Bradshawia, 188 ; Brewii, 99, 100 ; Brunette, 91, 99 ; Cardinal, 119, 134 ; Carmen, 97 ; Chantecleer, 98 ; chelseensis ($\times$ Odontoglossum crispum), 121 ; Clarissa, 243 ; Cleopatra, 98, 134 ; Clotho, 99 ; Colmania, 185 ; Colmanii, 99 ; Constance, 339 ; Corneyana, 164 ; crispilia, 99 ; Cynthia, 94, 99 ; daltonensis, 98, 134 ; Devosiana, 39 ; Don, 97 ; Doris, 99, 134 ; Edith Hodgson, Elsie, 98, 100 ; Euterpe, 87 ; Eva-May, 98 ; Felicia, 99 ; Feronia, 148, 157 ; Flamingo, 98, 100, 157 ; Gladys, 99, 117, 119, 132, 134, 149 ; Gloss, 310 ; Goodsonia, 164 ; Hemptinneana, 98 ; Henryi, 37, 58, 98 ; illustris, 187 ; Irene waltonensis, 187 ; Iris, 97 ; Isis, 98 ; Joan, 99 ; J. Rawdon var., 85 ; Kitty, 99 ; Lady Colman, 117 ; Lambeauiana, 164 ; L. Nellie, 186 ; Latona, 99 ; Leeana, 100 ; leopardina, 344 ; loochristiensis, 148 ; luminosa, 152, 157 ; Madeline, 147 ; M. Solum, 123 ; Margaret, 99 ; Margarita, 97 ; Mica, 87, 100, 134 ; Minerva, 99 ; Mossia, 97 ; Nebula, 157 ; Nemesis, 97 ; Nena, 373 ; oakwoodiensis, 99 ; ornata Enchantress, 184 ; Othello, 55, 99 ; Papilio, 208 ; Papilio, 208 ; Patricia, 85, 87, 99 ; Phyllis, 100 ; Pixie, 97 ; Prince of Wales, 243 ; Queen Mary, 100 ; Red Cross, 220 ;

Odontioda—

Red-Riding-Hood, 131, 132, 134 ; Rolfei, 98 ; Rossendale, 61, 100 ; Sanderæ, 98 ; Schröderi, 100 ; S. virginale, 222 ; Seymouria, 134 ; Sheila, 369 ; Simone, 83 ; Simone, 94, 100 ; Stella, 98 ; Sultan, 117, 134 ; Sunbeam, 184, 243 ; Vivid, 82, 94, 98 ; Vivienne, 100 ; Vulcan, 339 ; Vuylstekeæ, 97 ; West Point Beauty, 122 ; Zenobia, 100 ; Z. Leeana, 148.

Odontiodas, 97, 134.

Odontocidium, 293 ; Edwardatum, 293 ; Fowlerianum, 293 ; Juno, 307.

Odontochilus, 318 ; lanceolatus, 318.

Odontoglossum Adrianæ, 203, (raised artificially), 146 ; Adrieum, 123 ; Admiral Sturdee, 59 ; Aglaon Orchidhurst var., 186 ; amandens Queen of Spain, 82 ; Andersonianum, 203, 206 ; Black Dragon, 187 ; Black-Michael, 181 ; cerissimum, 273 ; Cervantesii, 93 ; C. decorum, 93 ; C. punctatissimum, 93 ; C. roseum, 93 ; Chestertonii, 204 ; Chloe, 372 ; citrosum, 52, 214, 365 ; Cobbiæ Ashlands var., 222 ; Cooksonia Ruby, 183 ; Coradinei, 101, 203 ; C. mirabile, 205, 206 ; crispodinei, 206 ; crispo-Harryanum, 121 ; crispo-Wiganianum Buttercup, 84 ; crispum, 202, 203, 206, 282, (a composite species), (blotched), 202, 203, 204, (Gold Medal Essay), 285, (hybrids), 101, (varieties), 132, ($\times$ Odagattonensis), 55 ; c. Angel, 73, 160 ; c. Chestertonii, 205 ; c. heliotropium, 206 ; c. Lehmanni, 202 ; c. Leonard Perfect, 28 ; c. leopardinum, 205 ; c. Marion, 201 ; c. Perfect Gem, 217, 219 ; c. Prince of Wales, 153 ; c. Sybil, 206 ; c. Solum, 180 ; Denisonia, 205 ; D. Chestertonii, 205 ; Doris nobilior, 370 ; Edna, 117, 184 ; Edwardii, 22, 23 ; Epicastum, 187 ; Evelyn, 243 ; eximium xanthotes, 30, 57 ; Farnesii, 117 ; Georgius Rex, 225, 240, 242, 245, 256 ; gloriosum, 203 ; Harryano, triumphans, 222 ; Herculaneum, 87 ; Horsmannii, 63 ; Hunnewellianum, 203 ; H. citrinum, 134 ; Invernium, 187 ; J. J. Bolton, 343 ; Laurence Bresson, 152 ; Lawre-crispum, 59 ; Leviathan, 149 ; Lindleyanum $\times$ crispum, 101 ; $\times$ gloriosum, 155 ; maculum, 122 ; Mars, 121 ; mirum, 205, 206 ; $\times$ Lambeauianum, 148 ; Menier St.-Vincent, 218 ; Meredithia, 178 ; nævros, 36, 307 ; Pembury, 370 ; Pescatorei, 231 ; Phillipsianum, 147 ; Phocis, 187 ; præstans, 156 ; prævisum, 155 ; President Poincaré, 276 ; Princess Mary, 186, 219 ; Rayonatum, 153 ; Rickardsia, 27 ; Rolfeæ ($\times$ Harryanum), 247, ($\times$ Odontioda Charlesworthii), 246 ; Rosalind, 184 ; roseum, 231 ; Sandhurstianum, 85 ; Stewartianum, 204, 206 ; Thisbe, 339 ; Thompsonianum, 56 ; Thwaitesii, 341 ;

Odontoglossum—

V.C., 123 ; Victory, 322, 340 ; V. Gratrixia, 344 ; Vulture, 30 ; Vulturia, 188 ; Wilckeanum, 203 ; W. albens, 203, 205 ; W. Chestertonii, 202, 205 ; W. Pittianum, 206 ; W. Sibyl, 206.

Odontoglossum house at Usk, 380, 361.

Odontoglossum in Fiji, 130.

Odontoglossums, 112, 210, 214, 263, 299, 367 ; secondary hybrids, 203 ; self-fertilisation of, 204 ; sowing the seeds of, 23.

Odontonia, 293 ; brugensis, 293, 339 ; Charlesworthii, 293 ; C. Fowler's var., 275 ; Cholletii, 294 ; Cleverleyana, 294 ; Cybele, 294 ; decora, 294 ; Edna, 294 ; Farnesiana, 294 ; Firminii, 294 ; Guillaume Olyff, 293 ; Kaffir-Queen, 294 ; Lælia-Sander, 294 ; Longowoyi, 294 ; Louise, 294 ; Lucilia, 294 ; Magali-Sander, 294 ; McNabiana, 294 ; ornata, 294 ; Roger-Sander, 294 ; Scylla, 310.

Edogonium, 198.

Enothera Lamarckiana, 92.

Oncidioda, 294 ; Bella, 294 ; cinnabarina, 294 ; Cooksonia, 294 ; Marjorie, 294 ; Mauricei, 294 ; Penelope, 295 ; waltonensis, 87, 157, 295.

Oncidium, 295 ; bifolium, 66 ; corynephorum, 56 ; delumbe, 112 ; Kramerianum, 16 ; Lanceanum, 16 ; Leopoldianum, 3 ; Marshallianum Rossendale, 155 ; McBeanianum, 295 ; nanum, 30 ; Papilio, 16 ; patulum, 39 ; tenue, 112 ; t. grandiflorum, 112 ; Waluewa, 223.

Oncidiums, 11, 38, 239, 262, 305.

Ophrys Kelleri, 176 ; olbiensis, 176.

Orchid Collection, destruction of, 128 ; Collections, early, 193, 194 ; culture and Evolution, 65 ; culture in Belgium, 69, 102 ; culture in Florida, 31 ; exhibits, 287 ; first, 268 ; Fifty years ago, 231 ; flower, 200 ; fly, 104 ; fossil, 154, 155, 232, 234 ; fungi, 67 ; future of the, 72 ; houses, 19, (atmospheric conditions), 18 ; (in Belgium), 70 ; hunters, mad, 129 ; hybridisation, 66 ; novelties, 194 ; Portraits, 192 ; rare in Kent, 257 ; seedlings, 289, 320, 350 ; seedlings and fungi, 66 ; seeds, germination of, 66, 67 ; smallest in the world, 189, 190.

Orchid Stud-Book, 97, 134, 293.

Orchidaceæ, 200.

Orchidology and War, 33, 34.

Orchids, 200, 232 ; at Boston, 126 ; at Cheltenham, 24 ; at Kew, 37, 223, 315 ; at the Panama Exhibition, 105, 128 ; at the Priory, Usk, 358 ; autumn-blooming, 353 ; beauty of, 194 ; botanical, 194, 289 ; certificated, 2 ; chalk-loving, 195 ; characteristics of, 65 ; collectors of, 193 ; cool, sowing the seeds of, 23 ; descent of, 268 ;

Orchids—

diversity of, 194, 290, 291 ; East Indian, 77, 78, 108 ; effect of light on, 63 ; epiphytic, 193 ; feeding, 31 ; fertilisation of, 290 ; flowers of, 291 ; for church decoration, 232 ; for cut flowers, 72 ; from Warrington, 320 ; germinating on towel-ling, 72 ; importing, 103, 194 ; in Belgium, 33 ; in Brisbane, 114 ; in Fiji, 130 ; in France, 33 ; in Germany, 34 ; in season, 30, 31, 37 ; in South Mexico, 12, 14 ; insect-like, 250 ; Mr. Dolansky's, 72 ; new, 68 ; Philippine, 328 ; polymorphism of, 194 ; raising from seed, 66 ; specimens, of, 194 ; suspended, 193 ; watering, 31 ; white, 322 ; summer quarters of, 139 ; treatment of, 331, 332.

Orchis augusticruris, 195 ; Aschersoniana, 207 ; Braunii, 367, 368 ; dubia, 195 ; ericetorum, 253 ; foliosa, 208 ; Fuchsii, 253, 254, (× incarnata), 258, (× latifolia), 253, (× maculata), 253, (× prætermisssa), 253, (× Habenaria viridis), 253 ; fusca var. bifida, 195 ; f. var. stenoloba, 195 ; f. var. triangularis, 195 ; Hallii, 254 ; hircina, 257 ; hybrida, 195 ; incarnata, 207, 208, (purple form), 207 ; incarnato-latifolia, 207 ; latifolia, 207, 208, 306, (× maculata), 367 ; latifolio-maculata, 367 ; maculata, 253, 254, (× latifolia), 254, (× prætermisssa), 254 ; m. præcox, 253 ; m. superba, 367 ; militaris, 195, (× purpurea), 195 ; m. var. hybrida, 195 ; Okellyi, 254 ; prætermisssa, 207, 208 ; purpureo-militaris, 195 ; sub-purpureo-militaris, 195 ; super-purpureo-militaris, 195.

Organism, an entity, 324.

Origin of Characters, 138.

Origin of sex, 196, 198.

Origin of species, 138, 290.

Otopetalum, 325 ; Tunguraguæ, 325, 326.

Our Note Book, 1, 33, 129, 161, 193, 225, 257, 289, 321, 353.

Ovule, 200.

PANGENESIS, 166, 168.

Paphinia cristata, 244.

Paris Congress on Genetics, 317.

Peristeria elata, 365.

Phaius, 174 ; simulans, 175.

Phalænopsis, 300 ; amabilis, 255 ; a. Rimestadiana, 222, 254 ; intermedia, 266 ; Rimestadiana, 255 ; Sanderiana, 361.

Phalænopsis, "Venezuelan," 130.

Phanerogams, 199, 200.

Platyclinis, 20, 213.

Pleiones, 144, 260, 335.

Pleurothallis astrophora, 37 ; (?) coccinea, 336 ; lilacina, 223 ; muricata, 326 ; otopetalum, 326 ; platyrachis, 325, 326 ; sororia, 326.

Pollen and ovules, 168.

Pollen grains, 199.

Pollen tubes, 199, 200.

Pollination, effect of, 200.

Polystachya Hislopil, 68.

PORTRAITS—*AERIDES virens*, 64.—*BRASSO-CATTLEYA Cliftonii albens*, 64, 96; Pink Pearl, 32.—*CATTLEYA Hardyana* var. *Rutherford*, 32; *labiata*, 32; *Lueddemanniana Stanleyi*, 96; *Skinneri*, 32; *Trianae Queen Elizabeth*, 96.—*CÆLOGYNE cristata*, 32; *Veitchii*, 64.—*CYMBIDIUM Alexanderi albens*, 64; *Coningsbyanum Brockhurst* var., 64; *Schlegelii Fowler's* var., 96.—*CYPRIPEDIUM Arthurianum Langley* var., 64; *Boltonii*, 32; *Grand Duke Nicholas*, 64; *Helen II. Westombirt* var., 32; *James Buckingham*, 32; *Juno*, 96; *King George V.*, 32.—*DENDROBIUM Bensoniæ*, 32; *nobile*, 32; *primulinum*, 64; *Triumph*, 96.—*EPIDENDRUM elegantulum*, 64; *Endresii*, 64; *Wallisii*, 64.—*MORMODES tigrinum*, 96.—*ODONTIODA Latona*, 64; *Latona Fowler's* var., 96; *Patricia*, 96.—*ODONTOGLOSSUM Ceres magnificum*, 96; *citrosum*, 96; *crispum Constance*, 96; *Mirabeau* var. *Mastiff*, 64; *Rossii immaculatum*, 64; *Rossii rosefieldiense*, 64.—*ONCIDIUM splendidum*, 64; *varicosum*, 32.—*VANDA Sanderiana*, 32.

Potting, 71.

Priority, 291, 292, 324.

Pritzel's *Iconum Botanicum*, 192.

Propagation, 102; asexual, 228; by seed, 228.

Puydt, on Orchids, 65.

RALLI, Mr. Pantia, 63.

Red Cross Fund, 352, 375.

Red Spider, 104.

Reduction division, 167, 227, 228, 229.

Rehder, Mr. Frank, 159.

Reichenbach's Herbarium, 296.

Renanthera *Imschootiana*, 90; *Storiei*, 14, 279, 297.

Reproduction by division, 196; by vegetative bipartition, 198, 227.

Reproductive cells, 167.

Reversion, 166, 203, 230; a by-product of sexuality, 230; cause of, 228, 229; phenomena of, 228.

Rodriguezia *lanceolata*, 336; *secunda*, 336.

Roll of Honour, 256.

Royal Horticultural Society, 22, 26, 59, 82, 115, 147, 178, 216, 241, 273, 306, 338, 369; Botanical Certificates, 287, 289; Certificate of Appreciation, 289; Certificates, 322; Chelsea Show, 179; early meetings, 231; Holland House Show, 225, 241, New Awards, 287; New Certificate, 289;

Royal Horticultural Society—

Scientific Committee, 63; Seedling Commendation, 289, 308, 321; Spring Show, 161.

SARCOCHILUS *Ceciliæ*, 242.

Scale, 50.

Schizophyta, 196.

Schomburgkia *Thompsoniana*, 223; *Wallisii*, 181.

Schomburgkias, 212.

Seed, 199, 200.

Seed-sowing, 102.

Seeds, dispersal of, 200.

Self-fertilisation, 204.

Sexual cells, 168.

Sexual reproduction, 196, (origin of), 198, 227, 230.

Sexuality, 230, (origin of), 198, 227, 230.

Shading, 71, 74, 107, 140, 165.

Sinclair, Mr. Douglas A., 319.

Slugs, 39.

Sobralia dellensis, 288; with two lips, 288.

Sobralias, 54, 335.

Société Nationale d'Horticulture de France, 33, 34; German membership cancelled, 34.

Sophrocattleya, 355; *ashteadensis*, 341; *Iris*, 310; *Laconia*, 245; *Lycia*, 26; *Niobe*, 355, 371; *Olive* var. *Fairlawn*, 147; *Orion*, 372, 376; *Serbia*, 369.

Sophrocattleya Annette, 27; *Dorea*, 30; *Pearl*, 28, 370; *November*, 344; *Saxa*, 56; *Sylvia*, 277; *Thwaitesii*, 184.

Sophro-Lælio-Cattleya, 355.

Sophronitis, 23; *grandiflora*, 141, 304.

Spathoglottis, 78.

Species of 1914, 3; hybrid, 92; true from seed, 166; what is a?, 138.

Spermatozoids, 198.

Spirogyra, 197.

Sporophyte, 199.

Sports, 229.

Stanhopea inodora, 291.

Stenoglottis longifolia, fastigate, 319.

Stippling the roof glass, 140.

Sypropedium Maudii, 162.

TAINIA barbata, 326, 327.

Temperatures, 139, 299.

Thomas, on Orchid seeds, 66.

Thrip, 22, 50, 89, 104.

Thrixspermum pallidum, 106.

Thunias, 76, 173, 300.

Trichopilias, 365.

UGANDA, Flora of, 191.

Ulothrix zonata, 196.

Unicellular plants, 198.

Unit-characters, 323.

Utricularia montana, 279.

VANDA cœrulescens, 15 ; luzonica, 14, 15, 106, 137, 353, 371 ; Marguerite Maron, 237 ; Sanderiana, 15, 310, 361 ; teres, 14 ; tricolor, 79.

Vandas, 75, 302 ; terete-leaved, 237.

Variation, 291 ; and reversion, 230 ; correlated, 324 ; injurious, 290 ; of secondary hybrids, 168 ; of seedlings, 204.

Vasculares, 199.

Vegetative bipartition, 230 ; reproduction, 196.

Ventilation, 107.

Vriese, Mutation theory, 92.

Vuylstekeara, 295 ; Hyeana, 295 ; insignis, 295.

WALLACE, Dr. A. R., 5.

War and Orchidology, 33, 128 ; effects of, 1 ; items, 270 ; shortage of labour, 319.

War, Horticultural Relief Fund, 242.

Watering, 71, 165.

Woodlice, 104.

XYLOBIUM elatum, 247.

ZOOSPORES, 196.

Zygopetalum Ballii, 363 ; maxillare, 364
Prainianum, 68.

Zygopetalum hybrids, 364.

Zygopetalums, 22, 383.

Zygospore, 197.

Zygote, 227.

LIST OF ILLUSTRATIONS.

Aërides Schroederi	265
Anguloa Clowesii	177
Barker, Mr. J. T.	41
Cattleya Lady-Veitch	329
Cattleya Lueddemanniana alba	345
Cattleya triumphans	313
Cattleya Victoria-Reginia	280
Cattleya Warscewiczii alba	272
Cœlogyne Mooreana	49
Cypripedium Fairrieanum at Bury	337
Cypripedium Maudiae	163
Cypripedium Priam	40
Dendrobium Devonianum	113
Dendrobium Harveyanum	120
Disa grandiflora	169
Disa kewensis	169
Disa langleyensis	169
Disa Premier	169
Disa tripetaloides	169
Disa Veitchii	169
Eulophiella Elisabethæ	145
Forget, M. Louis	281
Harvey, Mr. F. W.	305

Lælia majalis	233
Lycaste Balliæ	88
Masdevallia rosea	209
Miltonia Charlesworthii	249
Neomoorea irrorata	80
Odontoglossum Coradinei mirabile	205
Odontoglossum crispum solum	180
Odontoglossum crispum Marion	201
Odontoglossum crispum Perfect Gem	217
Odontoglossum crispum The Angel	73
Odontoglossum Georgius-Rex	240
Odontoglossum præstans	156
Odontoglossum Stewartianum	204
Odontoglossum Wilckeanum albens	203
Odontoglossum Wilckeanum Chester- tonii	202
Odontoglossum house at The Priory, Usk	360
Orchids at the Panama Exhibition	105
Orchis Braunii	367, 368
Renanthera Storiei	297
Vanda luzonica	137
Vanda Sanderiana	Frontispiece